

# S. MAW, SON & THOMPSON'S BATH GLOVES, RUBBERS, &c.

	Gloves. (Pairs.)	Straps.	Pairs.
<b>CALEFACIO OR BADEN, No. 1,</b> soft Brown . . . per doz.	6/0	9/0	5/4
<b>CALEFACIO OR BADEN, No. 2,</b> hard Brown . . . per doz.	6/0	9/0	5/4
<b>CALEFACIO OR BADEN, No. 3,</b> soft Brown, assorted patterns, per doz.	6/6	9/0	5/4
<b>CALEFACIO OR BADEN, as-</b> sorted patterns, export quality, per doz.	4/0	(Red labels)	
<b>CALEFACIO (the U.S.), Striped</b> soft Brown . . . per doz.	6/6	9/0	5/4

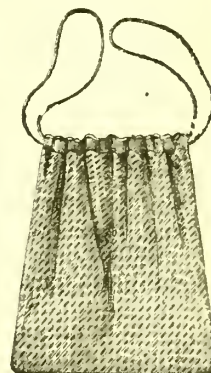
	Gloves. (Pairs.)	Straps.	Pairs.
<b>HONEYCOMB, White.</b> per doz.	5/4	9/0	5/4
<b>REVERSIBLE, No. 1, one side</b> soft Brown, the other best White Turkish . . . per doz.	6/8	11/0	5/4
<b>REVERSIBLE, No. 2, one side</b> hard Brown, the other White Honeycomb . . . per doz.	6/8	11/0	5/4
<b>REVERSIBLE, No. 3, one side</b> Egyptian Loofah, the other best White Turkish, per doz., single	4/6 and 5/6	16/0	—

**TURKISH.** White, per doz. pairs, 2/9, 3/-, and 4/-; **SUPER**, 4/9 and 6/-

**TURKISH,** Assorted, Coloured Stripes, per doz. pairs, 5/6 and 6/-

## WATERPROOF SPONGE BAGS.

	1	2	3	4	5	6
	7×6	8×7	9×8	10×9	11×10	12×11
<b>CHECK, Super</b> ...	6/-	7/-	9/-	11/-	12/6	16/- per doz.
<b>SATIN</b> ...	7/6	9/6	11/6	14/6	18/-	21/- "
<b>SATTEEN</b> (Check double faced) ...	7/6	9/6	11/6	14/6	16/6	18/6 "
<b>" Fancy</b> ...	6/-	7/3	8/3	10/-	11/6	13/- "
<b>SILK</b> ...	7/-	9/-	11/-	13/6	17/-	20/- "



## THE BRIGHTON BAG,

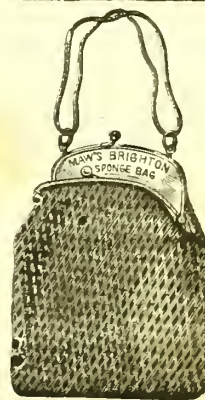
WITH BALL CLASP FASTENINGS, NICKEL-PLATED.

	No. 2	3	4	5	6
	8×7	9×8	10×9	11×10	12×11 in.
<b>CHECK</b> ...	10/-	12/-	14/-	16/-	18/- per doz.
<b>CHECK, Super</b> ...	16/-	18/-	20/-	26/-	28/- "
<b>PAISLEY</b> ...	18/-	20/-	22/-	28/-	32/- "
<b>SATTEEN, Fancy</b> ...	12/-	14/6	16/6	18/6	21/- "

For other descriptions see Quarterly Price Current, page 75.

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Made in upwards of 150 formulæ. Some of the more important are:—

Arsenious Acid 1 100, 1/50  
Aconite Tinct., 1 min.  
Aloin Comp., { Aloin 15  
                  { Strych. 1 60  
                  { Ext. Bellad. 1  
                  { Ipecac. 15  
Ammon. Brom., 5 and 10 gr.  
                  " Chlor., 3 and 5 gr.  
Antacid.  
Antifebrin, 3 gr.  
Antim. Tart. and Ipecac., 1 100 gr.  
                  each.  
Antipyrin, 5 gr.  
Bismuth and Soda  
                  " Carb., 5 gr.  
                  " Soda and Ginger  
                  " Subnit., 5 gr.  
Caffeine Cit., 1 and 2 gr.  
                  " Hydrobrom., 2 gr.  
Calcium Sulphide, 1 10, 1/2, and 1/4 gr.  
Calomel, 1 10, 1/2, and 1 gr.  
Carbo. Lig., 5 and 10 gr.  
Cascara Ext., 2 gr.  
Cascara Comp., { Ext. Cascara, 1 gr.  
                      { Euconymin, 1/2 gr.  
                      { Ext. Hyoscyamus, 1  
                      { Nux Vomica, 1 16  
Chloral Hydrate, 5 gr.  
Cocaine, 1 20, 1 10, 1/2, 1/5, 1/4, 1/8  
Cupri Arsenitis, 1/50  
Dover's Powder, 5 gr.  
Easton's (1=1 dr. Syrup)  
Ergotin, 3 gr.  
Exalgine, 1/2, 1, and 5 gr.  
Euonymin, 1/2 and 1 gr.  
Blaud Ferrugin, 5 gr.  
Gummi Rub. c. Cocaine, 1/20  
Hyl. c. Creta, 1/2, 1, and 1 gr.  
Ichthyol, 2 1/2 gr.

Ipecac. Pulv., 1 50, 1 20, 1 10, 1/2, and 5 gr.  
Lithia Comp.  
                  (Mr. Hugh Laue's revised formula)  
                  Lithia Salicylas, 2 gr.  
                  Sulphur Precip., 2 gr.  
                  Quinine Salicyl., 1/2 gr.  
Morphia Sulphate, 1/2, 1/4, 1/8, 1/16 gr.  
Nitro-Glycerine, 1 100 gr.  
Papaine, 1, 2, 3, 5 gr.  
Papaine 1 gr., and Pepsine 2 gr.  
Papaine 2 gr., and Pepsine 5 gr.  
Pepsine, 2 gr.  
Peptonic  
Phenacetin, 5 gr.  
Polioxylin, 1/2, 1, and 1/4 gr.  
Pot. Chlor.  
                  " Borax  
                  " " and Cocaine, 1/100  
                  or 1 20 gr.  
Quinine Bisulph., 1/10, 1/2, 1, 2, 3, 5 gr.  
Rhei, Zingib., and Soda  
Saccharin, 1/2 gr.  
Salicin, 5 gr.  
Salipyrin, 5 gr.  
Salol, 5 gr.  
Santonin, 1 gr.; Calomel, 1 gr.  
Sola Mint  
Sodi Broudd., 5 gr.  
Sod. Salicyl., pure, 5 gr.  
                  " natural, 5 gr.  
Sublimate  
                  " Comp.  
Sulphonol, 5 gr.  
Sulphur Comp., 5 gr.  
Urethane, 3 and 5 gr.

\* Such Tabellæ as contain bitter medicines, like Aloin, Cascara, Laxative Quinine, &c., are made SUGAR-COATED, these valuable, though nauseous remedies being thereby presented in a palatable and tempting form. Tabellæ of very soluble substances, and those prescribed for their local action, &c., are made as heretofore, and dissolve slowly in the mouth, the affected surfaces thus coming in direct contact with a solution of the remedy, and by the continuous action of the drug the therapeutic effect is made certain.



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**Bynin**, an active Malt Essence, in capsuled bottles only at 1s. 9d. and 3s.; or 16s. and 27s. per dozen.

**"Bynin Emulsion,"** Perfected Cod Liver Oil and the Hypophosphites of Lime and Soda, with Liquid Malt, in capsuled bottles at 1s. 4d., 2s. 6d., 4s. 9d., and 9s.; or 12s., 23s., 44s., and 80s. per dozen.

**Byno-Hypophosphites**, a Neutral Solution of the hypophosphites with alkaloids of —nchona and Nux Vomica, 1 oz. contains or equals 1/40 gr. strychnine, in capsuled bottles at 2s. 6d. and 4s. 6d. each; or 24s. and 41s. per dozen.

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**Byno-Phosphates** (Malted Chemical Food), in bottles 2s. 6d. each, 24s. per dozen.

**Coca-Bynin**, in 2s. 6d. and 4s. 6d. bottles, at 24s. and 41s. per dozen.

**Peptonising Powders**, for peptonising foods for infants and invalids, 1 dozen in box, one to each pint of milk with water, 12s. per dozen boxes.

### Perfected Cod Liver Oil.—(A. & H.)

Made from fresh and selected livers, can be digested by the most delicate, and is the only oil which does not repeat. In capsuled bottles only at 1s. 4d., 2s. 6d., 4s. 9d., and 9s.; or 12s., 23s., 44s., and 80s. per dozen.

### Ol. Ricini Insipidum.—(A. & H.)

*Pure Active*, absolutely free from odour and unpleasant taste. In capsuled bottles 6d., 1s., 1s. 9d., and 3s.; or 4s. 6d., 9s., 15s., and 27s. per dozen; and in Winchester quarts at 1s. per lb.

### New Granular Effervescent Preparations.—(A. & H.)

Manufactured in upwards of 80 different formulæ—Bismuth, Pepsine, and Strych.; Quinine, Iron, and Strychnine; Antipyrin, Lithia Citrate, Ferri Amm. Cit., Phenacetin, &c. In new stopper-measure bottles. See THE CHEMIST AND DRUGGIST, July 1, 1893.

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*The next Full Course commences on September 11,  
FOR WHICH ENTRIES ARE NOW BEING MADE.*

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THE EVENING CLASSES will be continued to be held, as usual, on the TUESDAY and WEDNESDAY Evenings.

*The Syllabus, with full particulars, may be had, post free on application to the Principal.*

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At the July Examination, Mr. R. CLEAVE, of Pontefract, passed the Major. This gentleman was successful at first attempt in both Minor and Major, so also were the last four Major Students from here.

A Special Class will begin, for Advanced Students, on the 28th August for the October Examination.

Send in names early for the Course commencing October 3rd, for the January Examination.

Apply for Prospectus, &c., to the Principals, 118 Princess Buildings, The Moor, Sheffield.

# ST. MARY'S HOSPITAL MEDICAL SCHOOL, PADDINGTON, W.

THE WINTER SESSION begins on OCTOBER 2nd, with an Introductory Address at 4 P.M. by Mr. J. E. LANE, F.R.C.S. The ANNUAL DINNER will be held on WEDNESDAY, OCTOBER 4th, at the Metropole, Mr. E. W. PAGE, F.R.C.S., in the Chair.

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One of £105 } will be awarded by Examination on September 25th  
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Numerous CLASS PRIZES and SCHOLARSHIPS are given by competition at the end of each year, and there are moreover annually Sixteen Resident Medical and Surgical Appointments in the Hospital, open to students without expense or charge. There is daily clinical teaching by the Physicians and Surgeons. Frequent classes are also held by the Medical, Surgical, and Obstetric Tutors. The School provides complete preparation for the higher Examinations and Degrees of the Universities.

The Residential College is at present at 33 and 35 Westbourne Terrace, W. Terms may be had on application to the Warden, E. W. ROBERTSON, M.D. and B.S. Lond., F.R.C.S.

H.R.H. THE PRINCE OF WALES last December laid the Foundation Stone of the CLARENCE MEMORIAL WING. The new Building will contain

- (1) A NEW OUT-PATIENTS' DEPARTMENT.
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- (3) A RESIDENTIAL COLLEGE for Medical Officers and Students. The latter will then be close to their work, and more directly under the influence of the Medical School.
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The Editor of  
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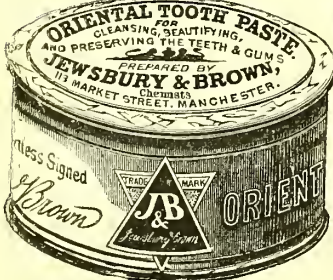
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and is distinguishable by the Trade Mark, printed in red and green, a facsimile of which is annexed. Particular attention should be paid to this guarantee of genuineness, as numerous imitations are offered. Sold universally by Chemists and Perfumers, at 1s. 6d. and 2s. 6d.

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---

FOR some years we have argued strenuously for legislation regulating the manufacture of soap, and have been vigorously opposed by leading soapmakers. Our efforts bid fair to bear fruit in due time. The way the public is mulcted in soaps is almost beyond belief. You can water soap as effectually as you can water milk. If soap is largely resin, silicates, water, or is made from bad fats, or contains poisonous substances, or is charged with 30 per cent. of sugar, the manufacturer at any rate should be compelled to state the grade and character of the soap on the wrapper of each tablet, that the public may at least know what they are buying. When the manufacturer can sell water or sugar at the price of soap, he is in as profitable a line of business as his brother who waters his milk. When he can palm off old-fashioned soap as modern he is doing very well in "bamboozling" the public. It is high time that this giving the purchaser half or two-thirds water or one-third sugar when he asks for and pays for soap was stopped.

---

*The following from "The Chemist and Druggist" will be of interest:—*

**"Soap Legislation in Germany.**—At the recent annual conference of the Association of German Soapmakers at Leipzig, a resolution was unanimously accepted to memorialise the Imperial Chancellor and the Prussian Minister of Commerce to the effect that the proposed legislation restricting the falling of soap is not sufficiently stringent, but that all fulling-processes in which insoluble materials are used ought to be prohibited. The Association further asked that for hard soaps 60 per cent. of fatty acid, and for soft soaps from 38 to 40 per cent. of fatty acid, should be fixed as the legal minimum. The regulations under which medicinal soaps, soap powder, and soap extract should be allowed to be sold ought also to be made more stringent. *With regard to the addition of sugar to soap, the Association agree that such an addition did not increase the preserving capacity of toilet soap, but only increased the weight at the expense of the cleansing-powers of the article.*"

---

VINOLIA SOAP—Premier, 4d.; Floral, 6d.; Balsamic, 8d.; Toilet, 10d.

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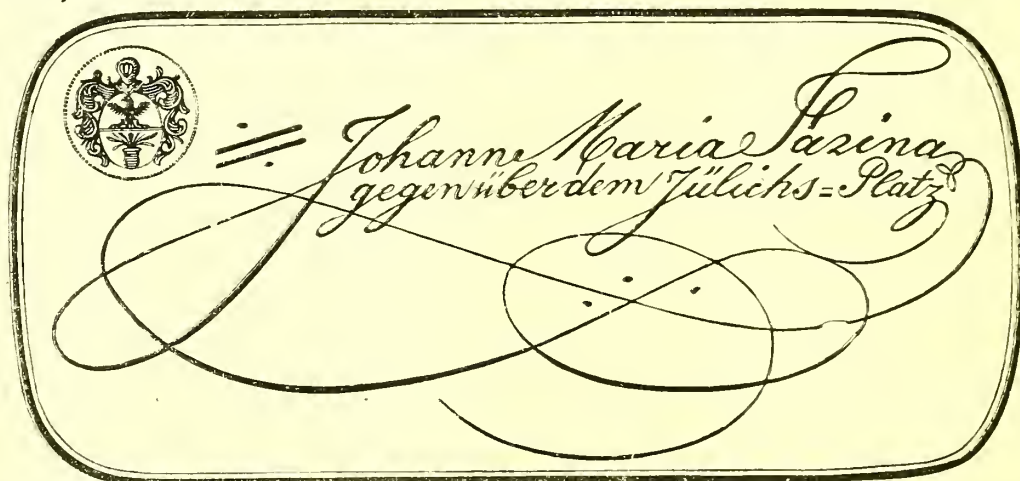
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King of Prussia; Alexander II., Emperor of Russia;  
Francis Joseph, Emperor of Austria; Lewis, King  
of Portugal.In consequence of increasing inquiries from the Colonies for my Eau de Cologne, the only genuine, I  
beg to submit my Price Current.At the same time I beg to call special attention to the following facsimile of my Trade Mark, for the  
protection of which I have instituted thirteen suits in the High Court of Chancery, all of which have been  
decided in my favour.All similar Labels being more or less imitations of the same, I shall proceed as before against all persons  
selling or exposing for sale any such imitations.I only prepare one quality of Eau de Cologne. This quality never varies in the slightest degree, and there  
has not been the smallest change in the manufacture since the year 1709, when it was invented by my ancestor.Orders equal to at least 12 dozen short bottles will be promptly executed at 13s. 6d. per dozen, against my  
bill drawn at three months from the date of invoice, delivered free on board the export ship, at Rotterdam  
Antwerp, Hamburg, or Bremen, no charge being made for the case and packing, but insurance charged extra  
7½ per cent. discount is allowed for orders equal to at least 100 dozen, but on no smaller quantities.I may add that, as I do not draw on the Colonies, all Orders must be accompanied by a credit on some  
London House, or permission to draw on same at three months.The Goods can also be shipped in transit through London at a very small additional expense, full particulars  
of which may be obtained of my Sole Agents for Great Britain and Ireland:—

MESSRS. J. &amp; R. McCRACKEN,

No. 38 Queen Street, Cannon Street, LONDON, E.C.

The following are the sizes of my bottles:—

No. 1	Long Green Flasks	...	...	...	...	...	12 bottles	} to one dozen.
" 2	Short White Bottles	...	...	...	...	...	12 "	
" 3	Double ditto	...	...	...	...	...	6 "	
" 4	Wickered Bottles (small)	...	...	...	...	...	6 "	
" 5	ditto (medium)	...	...	...	...	...	4 "	
" 6	ditto (large)	...	...	...	...	...	2 "	

JOHANN MARIA FARINA,

OPPOSITE THE JULICH'S PLACE.

COLOGNE: January, 1893



# MULHENS' ORIGINAL No. 4711 BRAND OF EAU DE COLOGNE

THE  
Blue & Gold Labelled

EXTRACT OF

DOUBLE STRENGTH

IS RETAILED AT THE

LONDON BRANCH

AT

2/6 per 4 oz. bottle

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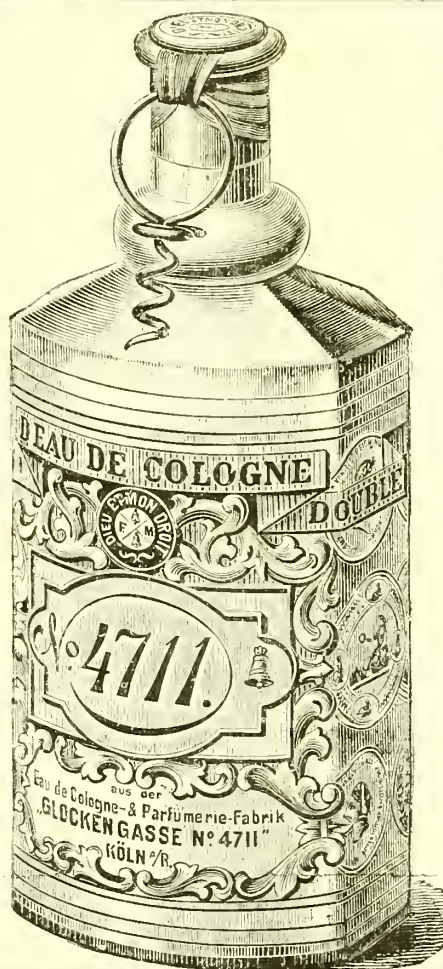
12/6 per case of six.

HIGHEST

AWARDS

WHEREVER

EXHIBITED.



THE  
Blue & Gold Labelled

EXTRACT OF

DOUBLE STRENGTH

IS

The PUREST

The STRONGEST

The MOST LASTING

YET

The MOST DELICATE

EVER PRODUCED.

NEVER VARIES

IN

QUALITY.

**ONLY FIRST PRIZE AT COLOGNE, 1875.**

WHEN ORDERING DO NOT OMIT TO MENTION THE

**No. 4711 AND THE BLUE AND GOLD LABEL.**

OF ALL WHOLESALE FIRMS IN THE UNITED KINGDOM.

Manufacturer : FERD. MULHENS, 4711 Glockengasse, Cologne-on-Rhine.

BRANCHES AT NEW YORK, VIENNA, RIGA, ODESSA, AND

**LONDON, 62 NEW BOND STREET, W.**

Mr. R. T. REUTER, Wholesale and Export Agent. SHIPPERS are requested to communicate with Mr. Reuter. See also "The Chemist and Druggist" of 24 Dec., 1892, page 906.



STOCK KEPT IN LONDON

# SOZIO & ANDRIOLI

ESTABLISHED A.D. 1757.]

**GRASSE** (Alpes Maritimes), FRANCE.

Neroly, Lavender, Geranium, Orris, Patchouly, Thyme, Rosemary, Spike, Santal, &c.

**CONCENTRATED PERFUMES.**

**CONCRETE ESSENTIAL OILS.**

FLOWER POMADES at the highest possible Saturation. ROSE & ORANGE FLOWER WATER, Sweet Almond Oil.

London Agent—MR. FREDK. BOEHM, 4 CULLUM ST., E.C.

STOCK KEPT IN LONDON

## R C TREATT

Dunster House Mincing Lane  
**LONDON**

IMPORTER OF

Musk Civet Ambergris Attar - of - Rose

**ESSENTIAL OILS**



Wholesale  
and  
Export  
only

APPLICATION

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AND

PRICE LIST

## E. WITROFSKY,

Drug and Chemical Merchant,

**22 FENCHURCH ST., LONDON, E.C.**

**PURITY GUARANTEED.**

Oleum Absinthii, Amygdalæ Dulcis, ditto Essent., Anisi (H. & W.), Bergamotæ, Caryophylli, Cognac, Coriandri, Geranii (Vimard & Co.), Iridis (Vimard & Co.), Juniperi, Lavendulæ, Limonis, Menth. Pip. (H. G. Hotchkiss), Pini Pumilionis, Sylvestris, Rosmarini, &c., &c., &c.

## OTTO OF ROSE (Pure Virgin).

**SPECIALITIES:—**

**CARAMELINE** (substitute for Burnt Sugar). 20 times stronger than Caramel.

**SOLUBLE ESSENCE OF ORRIS** (Maubert Fils & Vimard).

**CONCENTRATED PERFUMES, POMADES, FLOWER-WATERS.**

Carbolic Acid, Liquid, 25 per cent.

Carbolic Acid, „ 50 „

Carbolic Acid, Liquid, 95 per cent.

Carbolic, Crystal, 35° to 70°.



# RICKSECKER'S PERFUMES

## At the WORLD'S FAIR.

An Extract from the Special Report of "THE CHEMIST AND DRUGGIST," July 29, 1893.

PERFUMES form one of the most attractive features in the ground-floor section. A prominent and most artistic exhibit is that of THEO. RICKSECKER, of Maiden Lane, New York, which occupies a corner of the aisle as we approach from the north entrance. Here there is a series of eight cases decorated in green enamel and gold, forming a kind of wedge.

The apical case contains a figure of the woman most revered by all Americans—Martha Washington, the mother of the Republic. This figure is modelled in wax, and is, we believe, a true likeness. Martha Washington was a charming and lovely woman, and Mr. Ricksecker has not failed to do her beauty justice, for the dressing of the figure is as tasteful and elegant a costume as would serve for a royal wedding. This unique feature naturally attracts attention to the exhibit, and once the visitor begins to inspect it he finds many things to interest him.

There is a charm about the Ricksecker perfumes which is unusual: they are elegantly put up, both the shapes of bottles and the style of labels being quite *sui generis*. This is particularly noticeable in such perfumes as lavender-Cologne, sweet clover, and many others which might be named. The perfumes are displayed in magnificent vases and flasks as well as in the usual bottles for retailing, and they are set off by a selection of solid perfumes (sachets, &c.), which are also of elegant get-up.

In connection with these perfumes we may mention that the syndicate having the exclusive sale of per-

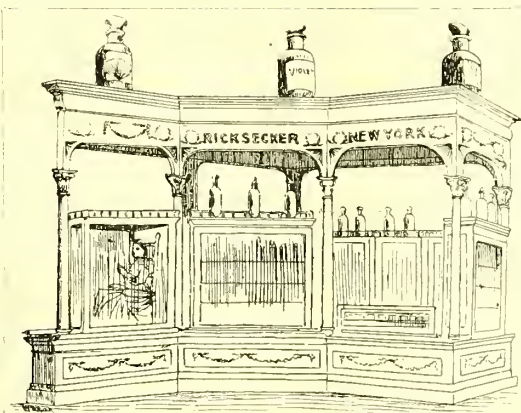
fumery at the Fair selected them as the only kind to be sold there, and the company which purchased the concession for selling perfumery through machines use them only in the 200 machines on the World's Fair grounds.

Besides perfumes the exhibit contains a good selection of toilet-preparations, such as tooth-powders, face-powders, reviving-salts, and soaps. There is a 165-lb. block of Ricksecker skin-soap on show which looks just like marble, and which, we noticed, was always dry whatever the state of the weather might

be. This is a distinct innovation in toilet-soaps, for it eschews all the characteristics which are generally taken to imply attractiveness. For instance, it is not brightly coloured, nor is it scented—the oleaceous base is purely vegetable and in saponification the amount of alkali is rigidly hit off, and by subsequent treatment the soap is brought to a condition of strict neutrality. In appearance the soap looks well, for it

is milled five times, so that it comes out almost cream in colour, and the odour is not unpleasant. It gives a smooth but not abundant lather which can lie upon the skin for a long time without producing irritation, and its detergent qualities are excellent.

It will be noticed from the sketch that Mr. Ricksecker's exhibit is surmounted by three gigantic bottles of perfume, and we ought to add that the cases are so arranged as to form an office within which the attendant can receive visitors, who also have the privilege of writing letters in the office.



MANUFACTURED SOLELY BY

THEO. RICKSECKER, MAIDEN LANE, NEW YORK CITY.

English Agents—LYNCH & CO., LIM., Aldersgate Street, LONDON. E.C.



# WARRICK

## WARRICK'S

### Real Floral FLAVOURS.

Real Belliotrope, Real Violets, Real Roses, Real Lavender Cachous,  
LILAC AND EAU DE COLOGNE PASTILLES.

3/- per lb., richly labelled; 4/- per dozen Boxes, gold embossed on calf.

18 OLD SWAN LANE, LONDON, E.C.

## BROTHERS.

# GROSSMITH'S NEW PERFUME.

FACSIMILE OF LABEL.

A HIGH-CLASS  
FLORAL EXTRACT.  
VERY ENTRANCING.

Price—1½-oz., 21/-; 3-oz., 40/-;  
6-oz., 80/- per dozen.



DEDICATED BY  
GRACIOUS PERMISSION  
TO  
PRINCESS MAY  
(H.R.H. the Duchess of York).

J. GROSSMITH, SON & CO

A FRAGRANT SOUVENIR

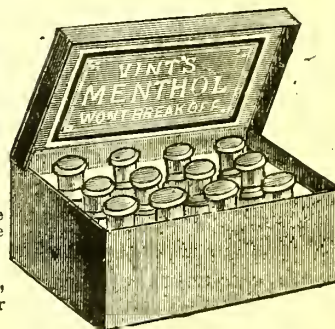
85 Newgate Street, LONDON.

## VINT'S PATENT UNBREAKABLE MENTHOL

Is firmly secured to the holder by the insertion of Feather  
Tips, which Penetrate the Cone, are Soft, Tough, and Spreading,  
so that it  
**WON'T BREAK OFF.**

The Chemist and Druggist says: "MR. VINT, CHEMIST, HASTINGS, is the  
originator of an ingenious idea for securing Menthol Cones so that they may be  
used to the last without fear of breakage."

3/6 & 6/6 doz., of Barclay, Maw, Sanger, Sutton, Edwards, Newbery,  
May Roberts, Chemists' Association, and all Sundry Dealers; or  
1 dozen of either size sent free on receipt of P.O. 3/6 or 6/6.



H. C. QUELCH, Wholesale and Export Agent, LUDGATE HILL, LONDON.

# A. S. LLOYD'S EUXESIS, FOR SHAVING WITHOUT SOAP, WATER, OR BRUSH.

## CAUTION.

The labels on genuine EUXESIS bear signature of Inventor, A. S. LLOYD, in BLACK INK, and the signature  
of his Widow, AIMEE LLOYD, in RED INK. Refuse all others.

Manufacturer: **AIMEE LLOYD** (WIDOW OF A. S. LLOYD, formerly of 27 GLASSHOUSE STREET),  
3 SPUR STREET, LEICESTER SQUARE, LONDON

N.B.—When ordering from Wholesale Houses, write "LLOYD'S EUXESIS (WIDOW'S)."



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DEALERS IN PATENT MEDICINES,

DRUGGISTS'

SUNDRIES,

PERFUMERY,

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MINERAL

WATERS,

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FANCY GOODS.

WAREHOUSE AND SHOWROOM—

## 2 WINSLEY STREET, OXFORD STREET, W.

*(Two minutes' walk from Regent Circus, and within easy distance of Portland Road Station, Metropolitan).*

Revised and enlarged Catalogue, of more than seven hundred pages, is now ready. Sent post free upon receipt of business card.

**H. A. ROBERTSHAW & CO.,**  
**HALIFAX, ENGLAND.**

Proprietors of BEAURINE PREPARATIONS,  
and Dentifrice Manufacturers to the  
Trade.

TELEGRAPHIC ADDRESS—  
"BEAURINE HALIFAX ENGLAND."

Quotations given for large or small quantities of all kinds of Dentifrices—i.e., Tooth Blocks, Powders, Liquids, and Pastes, in Collapsible Tubes. Write for our quotations before giving your order elsewhere. Dentifrices put up in high-class style. Quotations also given for Perfumes and all kinds of Preparations, with your own Name and Address, either from your own or our Recipes.

## CAUTION.

# A. S. LLOYD'S EUXESIS,

FOR

## SHAVING WITHOUT SOAP, WATER, OR BRUSH.

**R. HOVENDEN & SONS** having purchased under an administration suit the business of the late **A. S. LLOYD**, with the receipt, trade-mark, and goodwill of the celebrated Euxesis, the trade are cautioned that the original and genuine Euxesis is now manufactured at our Factory **ONLY**, and may be obtained at either of our Warehouses.

The label is printed with Black Ink only on a yellow ground.

31, 32 & 33 Berners St., W., and 91, 93 & 95 City Road, E.C., LONDON.



**EXCHANGE COLUMN.****FOR DISPOSAL.****Educational.**

Attfield's "Chemistry," latest edition, cheap.  
Send for list, Cooke, 61 York Street, Plymouth.

Microscope 30s.; another 16s. 6d., good for botany. W. G. B., 25 Lower William Street, St. John's, Wool.

**Formulae.**

For sale, 130 well-tried recipes, neatly copied in book, post, 1s. 6d. Tully, Chemist, Hastings.  
For sale, recipe for non-excisable ginger-wine essence; an original formula, producing an essence of great aroma and fine flavour; no alcohol used; price 5s. R. E. Huggins, Chemist, Wainfleet, R.S.O.

**Drugs and Chemicals.**

100 oz. morphia hydrochlor. at 5s. 3d. oz., cash or will exchange for drugs, patents &c. Hugh Edgson, Chemist, Hornsey, N.

Twenty-two doz.  $\frac{1}{2}$ -oz.,  $5\frac{1}{2}$  doz. 1-oz., 35 doz. 2-oz., and 41 doz. 4-oz. bottles eucalyptus oil, bottled, labelled, and wrapped in Australia; what offers, whole or part? sample  $\frac{1}{2}$ -oz. and 2-oz. for 9 stamps. Wright, Chemist, Kirkwall.

**Shop Fittings.**

For sale, 2 2-gallon cut stoppers, 2 2-gallon plain stoppers, and 6 1-gallon plain stoppers window-carboys; what offers? J. W. Smith, Chemist, The Pharmacy, Stony Stratford.

Job line.—Cut-glass knobs, 1s. 6d. per dozen, in large or small quantities. Alfred Natali, 40 Gray's Inn Road, London.

Second-hand outside lamp and iron, ruby glass, hexagon shape, 27s. Alfred Natali, 40 Gray's Inn Road, London.

Drawers, mahogany-fronted, gold labels, glass knobs, 4 ft. and 6 ft. lengths, 35s. and 55s., sound, clean condition. Alfred Natali, 40 Gray's Inn Road, London.

About 2 gross of gold-labelled shop-rounds, 40-oz., 20-oz., and 10-oz., assorted; also 2 gross pint siphons, guaranteed working order. Headland, North Street, Brighton.

Second-hand shop rounds, about 40 doz., gold shield labels, colours blue, green, and mint, 20 to 40 oz., good condition, 9s. doz. Alfred Natali, 40 Gray's Inn Road, London.

Counter-cases.—A 5 ft. long, as Maw's fig. 5, 57.; a do. do., 6 ft. long, 57. 10s.; also one similar, flat top, 6 ft. long, 57., all plate-glass; soda-water stands, as Maw's fig. 7, 45s.; also a circular do. do., 50s.; 2 plate-glass show-stands, as Maw's fig. 6, 50s.; all numbers refer to Maw's list 1891. Elkanah Natali, 242 Old Street (11 doors from City Road), London, E.C.

Thirty ft. run second-hand mahogany-fronted drawers, shelving, lockers, and cornice, in sections, and could be adapted to any size shop; counters; dispensing-cases; desk and case; bent-front counter-case, 5 ft. long; wall-case; 2 8-gallon carboys, cut stoppers; cement-jars; bottles; knives; window-enclosure; and outside lamp; to be sold a bargain, the entire fittings of chemist's shop; and a quantity of other fittings, cases, and utensils, worthy of inspection. Elkanah Natali, 242 Old Street (11 doors from City Road), London, E.C.

**Miscellaneous.**

Binial (mahogany) lantern, 6-way dissolves, blow through jets, Beard's safety regulator, line and tubing complete, in lock-up box, 77.; suitable for lectures and exhibitions. Cammack, Chemist, Fulham.

Moormain truss, good condition, right, cos 7s. 6d., price 5s. or will exchange for last edition "Extra Pharmacopoeia." Thomas, Chemist, Newcastle Emlyn.

For sale, Bailey's laboratory mill (Carr's patent), with Minton-ware pan and runner, for hand or power, mounted on strong wooden stand; has only been used once or twice; cost 137. a short time ago; will take 87. 10s., or without stand, 77. 10s. Apply, Philip Harris & Co., Wholesale Chemists, 144 Edmund Street, Birmingham.

**WANTED.**

Owen's "Practice of Perfumery"; state lowest price. Wm. Robertson, Box 1,646, San Francisco, California.

Two-gallon swan-neck carboy (Maw's old pattern). Summers, Heckington.

Old bell-metal or brass mortars ornamented. Price and particulars to Hunt, Pharmacist, Worthing.

A pair of 8-gallon pear-shaped carboys; height, with stopper, not to exceed 32 inches. Headland, North Street, Brighton.

Kelly's "Chemists and Druggists' Directory for 1893"; good condition and cheap. 99/27, Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

Wills' "Elements of Pharmacy" and Wootton's "Chemical Physics," latest, cheap. 37., Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

Chemist and Druggist for 1892, with indices; also Diaries for 1888, 89, 90 and 91. 3/4. Office of THE CHEMIST AND DRUGGIST, 42 Cannon Street, E.C.

Gantor's "Physics"; Remsen's "Organic Chemistry"; Towne's (Watts) "Chemistry," 2 vols.; Wills' "Materia Medica" (advanced). W. H. Kellett, Derby St., Bolton.

**Address Wanted.**

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SHOWCASE  
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**40 GRAY'S INN ROAD, HOLBORN,  
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22/- per gross.

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32/- per gross.

Terms, net cash with order, packages free, delivered to rail or wharf, London.

**SURREY PACKING CO., 57 New Kent Road, London, S.E.**

**FOUND DEAD!  
KILLED BY SANFORD'S RAT POISON,**

Which is said by Farmers to be the best and most effective ever introduced. Mr. Bliss, Farmer, Helethorpe, Leighton, writes, "That from one dressing he found 136 dead Rats next morning." Ald. Ashton, of Huntington, says he killed 70 Rats with a 1s. box of SANFORD'S RAT POISON. J. Long, Esq., of Carlton, states that he found over 300 Rats killed by using a 10s. tin of Poison. Price 6d., 1s., 2s., 3s., and 5s. per tin. To be had of all Chemists, or **SANFORD & SON, SANDY, BEDS.** Wholesale of Maw, Son & Thompson, Newbery & Son, Edwards & Son, and others, London.

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## SOLUBLE SANITARY FLUID (MILKY), CARBOLIC ACIDS & POWDERS

Of all strengths, in various packages for the Trade and for Export.

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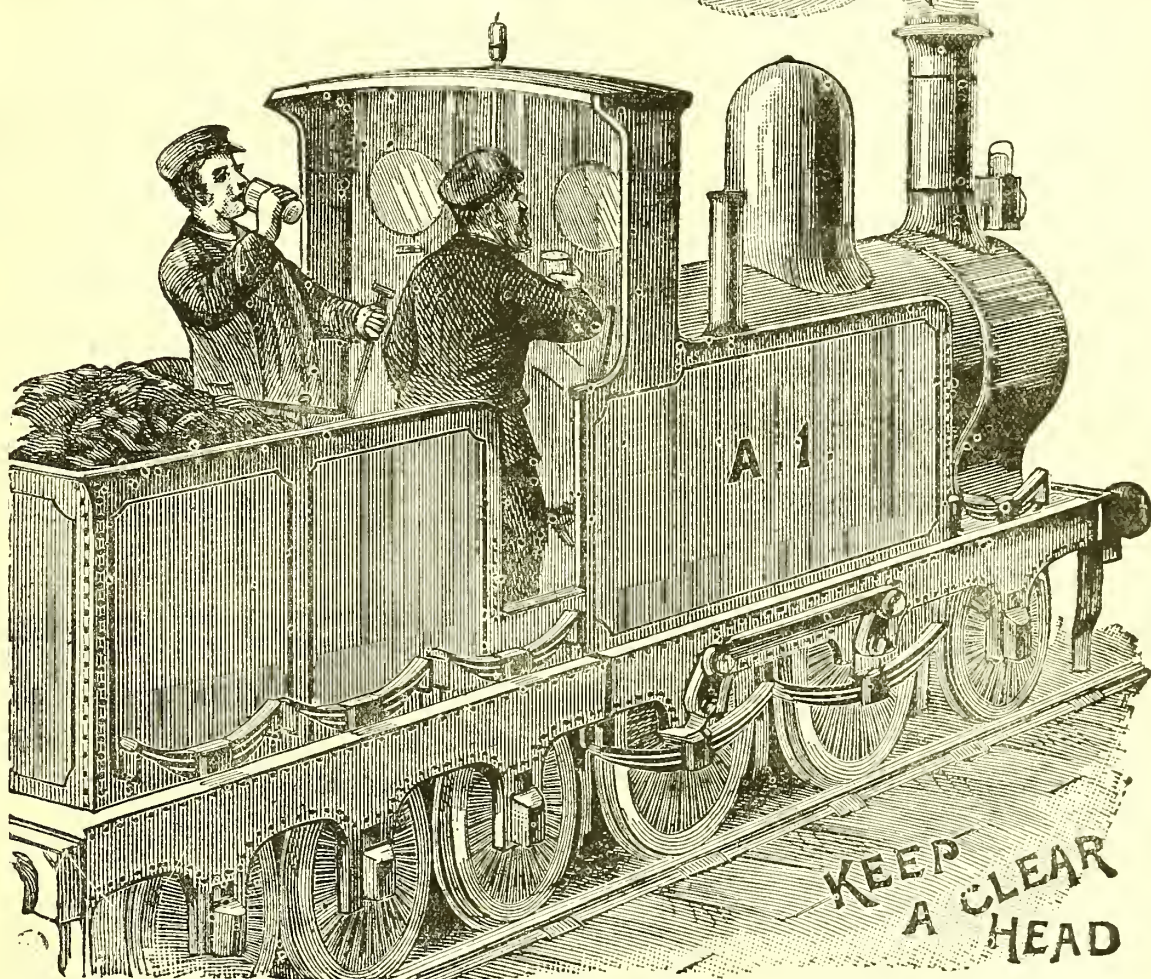
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**EXTRACT OF NON-INTOXICATING BEER**  
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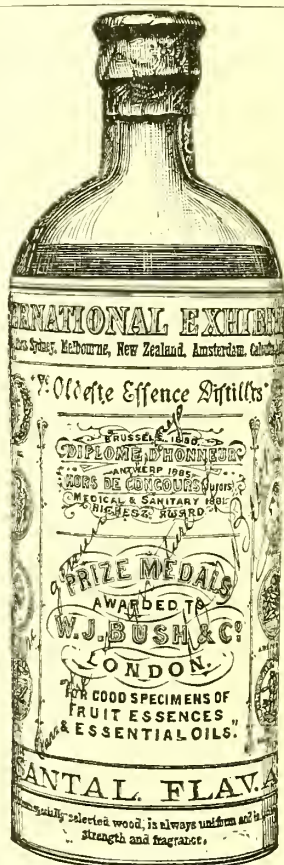
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ALL OWN DRAWING.

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DIRECT IMPORTATION.  
SPECIALLY SELECTED.

It is imperative that Chemists and others requiring Essential Oils for Medicinal purposes should purchase genuine and finest qualities only. These can only be obtained from W. J. BUSH & CO., who supply them as above, in 1-lb. Bottles, and guarantee their quality and purity. Nearly all Essential Oils offered in the Market are Impure.

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Works—ASH GROVE, HACKNEY.



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TRADE **"CAMWAL"** MARK.

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BY ANY FOR  
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"Rubine London."  
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ONLY PRIZE MEDAL,



LONDON, 1881.

HIGHEST PRIZE MEDAL,



BRADFORD, 1882.

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1879	350	None
1880	430	None
1881	540	None
1882	615	3 $\frac{3}{4}$
1883	703	5
1884	908	6
1885	1,193	6

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**EVERY CHEMIST'S ASSISTANT  
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1889	2,031	7 $\frac{1}{2}$
1890	2,088	8 $\frac{1}{4}$
1891	2,134	10
1892	2,312	10 %

For prices and particulars, apply  
to Secretary, 45 Gifford Street,  
London; also Sun Factory, Bristol;  
and Montpellier Works, Harrogate.

**SAMPLE CASES OF  
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TO CHEMISTS.**

The **ONLY** Company that supplies **EXCLUSIVELY** to **CHEMISTS** and **HOSPITALS**  
Manufactured Mineral Waters of the Highest Excellence and Purest  
Quality, and of Specified Formula.

This Company now numbers over **2,300** Members, and is steadily increasing.  
Dividends for past two years **10 PER CENT.**

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A COMPLETE APPARATUS,  
CAPABLE OF PRODUCING

OVER  
**300 DOZ. BOTTLES**

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at a minimum of cost,  
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**£20.**

**SODA-WATER MACHINERY**  
AND ALL APPLIANCES FOR THE TRADE.  
NO DANGER. NO MESS.

Write for  
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**JONES & COMPANY,**  
COPPERFIELD ROAD,  
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LARGEST MAKERS IN THE KINGDOM.

We are prepared to supply METHYLATED SPIRIT in  
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**REDUCTIONS TO LARGE BUYERS.**  
SAMPLES FREE.

**BOORD & SON,**

DISTILLERS, FOREIGN WINE AND SPIRIT MERCHANTS, AND METHYLATORS,  
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Quotations for **S.V.R.** Methylated Spirit and Finish on application.  
FINEST ORANGE WINE FOR QUININE

**JAMES  
BURROUGH,**

**FINE PORT** (without tannin)  
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**FINE MALAGA** (for Steel Wine, &c.)  
**FINE BURGUNDY** (for invalids)  
**S.V.R.** and Methylated Spirit at lowest present prices.

**CALE ST. DISTILLERY**

*All at Lowest Prices and  
specially recommended.*

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**WALKER, TROKE & CO.**

WHOLESALE DRUGGISTS,  
5 Bath Street, City Road,  
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QUOTATIONS & SAMPLES FREE ON APPLICATION.



SOLE MAKERS OF  
**GABRIEL & TROKE'S  
GELATINE CAPSULED  
HORSEBALLS.**

Alterative, Condition, Cordial, Cough,  
Diuretic, Fever, Physic, Worm, Quinine  
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CONFECTIONERY BOTTLES,

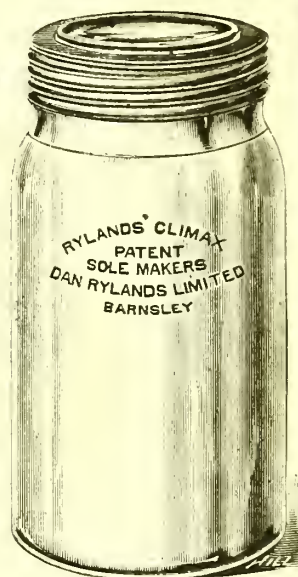
**WHOLE FRUIT JARS,**


HONEY & MILK JARS,

**PICKLE BOTTLES, &c.,**

WRITE FOR OUR PRICES & FULL PARTICULARS.

Please state for what purpose required.



 Fresh Fruit can be preserved with its natural flavour all the year round in our Patent Glass Bottles with Airtight Glass Caps.

BETTER THAN EARTHENWARE JARS. NO BROKEN BITS INSIDE.

**FINE NEW CROP OIL OF LEMON  
AND ESSENCES SUPPLIED.**

**DAN RYLANDS, LIMITED,  
BARNSELY.**

London Offices : 3 Dyer's Buildings, Holborn, London, E.C.



# VINACOCA

Embracing the Therapeutic Properties of the **COCA** Plant, blended with the best Madeira,  
The VINACOCA is carefully prepared from the best Coca Leaf only. (No Addition of Cocaine.)

**ONLY ONE WINE (CHOICE MADEIRA)  
ONE QUALITY (A1)  
ONE PRICE** } **THE BEST & CHEAPEST ON THE MARKET.**



The best Restorative is  
(Rolland's Coca Wine).

**VINACOCA**

The best Nerve Tonic is  
(Rolland's Coca Wine).

**VINACOCA**

The best Renewer of Health is  
(Rolland's Coca Wine).

**VINACOCA**

Sold in Bottles at 3s. 6d. each, or 40s. per dozen, Retail.  
Usual Trade Discount. Pamphlets for distribution, carriage paid.

COCA is prepared in various forms: COCA WINE, COCA LIQUEUR,  
COCA LOZENGES, COCA TABLETS, COCA ELIXIR, COCA TEA,  
COCA CHOCOLATE, COCA TOBACCO, &c.

FULL PARTICULARS FROM

THE FRENCH HYGIENIC SOCIETY, 5 CONDUIT STREET, REGENT STREET, LONDON, W.

## PURE ORANGE WINE

(VINUM AURANTII, B.P.), prepared in strict accordance with the Formula of the British Pharmacopœia.

MOST SUITABLE BASIS FOR QUININE AND OTHER MEDICATED WINES.

A. MILLAR & CO., DUBLIN; and 47 MARK LANE, LONDON, E.C.  
Or of H. J. ROYDANT & CO., 75 Acre Lane, BRIXTON, S.W.

HIRST, BROOKE & HIRST (LIM.), LEEDS,

Manufacturing Chemists and Wholesale Druggists, Manufacturers of

## ORANGE WINE

Of Finest Flavour and Quality, and specially suitable for the Preparation of Orange Quinine Wine.

## PEPSALIA.

The New Improved and Perfected Style. White and Odourless.

Guaranteed to keep good indefinitely in all climates.

1/ size	...	...	...	...	Pe dozen, 10/-	...	...	...	...	Per gross, 105/- net.
2/- "	...	...	...	...	" 20/-	...	...	...	...	" 210/- "
5/- "	...	...	...	...	" 50/-	...	...	...	...	" 525/- "

## PUMILINE.

Essence 1/6	...	...	Per dozen, 15/-, less 10 per cent	Liniment 1/9	...	...	Per dozen, 20/-, less 10 per cent.
" 2/6	...	...	" 24/- " 10 "	Jujubes 1 1	...	...	" 10/6 " 5 "
Extract 1/-	...	...	" 9/- " 10 "	" 2/3	...	...	" 20/- " 5 "
Ointment 1/1 1/2	...	...	" 11/- " 10 "	Dry Inhalers, complete 1/6	...	...	" 14/- " 10 "
" 2/9	...	...	" 27/- " 10 "				

G. & G. STERN. 62 Gray's Inn Road, LONDON, W.C.

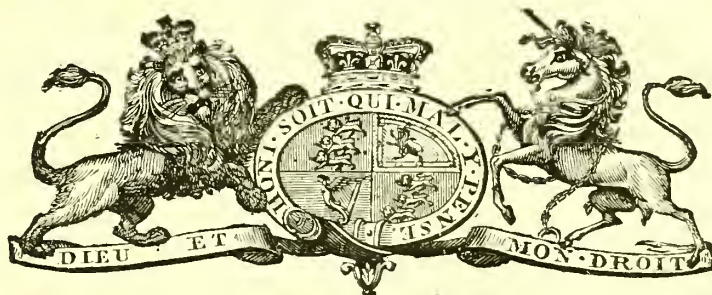


CHEMISTS WILL FIND  
**IDRIS TABLE WATERS**

COMMAND THE **BEST SALE.**

GOLD MEDALS AT JAMAICA, TASMANIAN, & KIMBERLEY EXHIBITIONS.

Purveyors  
of  
Table Waters  
by  
Royal Warrant



of Appointment  
to  
Her Majesty  
the  
Queen.

IDRIS TABLE WATERS IN SYPHONS AND BOTTLES.

**PURITY.** Water filtered by a special process, by which absolute purity is guaranteed. Distilled water used as required. Pure Chemicals only employed. All Goods are regularly subjected to strict analysis.

**ELEGANT SYPHONS.** Best Block Tin or Silver-plated Tops. IDRIS & Co. (Limited) make their own Syphons, and can therefore guarantee freedom from deleterious metal.

**LOWEST PRICES** for Water, both in Syphons and Bottles. Write for Price List.

**PROMPT DELIVERY** by our Vans in London and Suburbs. Customers called on regularly once or twice a week. Country orders despatched same day as received.

IDRIS & CO. (Limited) now supply a larger number of the London Hospitals, Public Institutions, and Chemists, than any other Manufacturers, which is in itself a sufficient guarantee of the excellence and purity of the Waters supplied by them.

**IDRIS & COMPANY,**

Limited,

CAMDEN TOWN, LONDON, N.W.



EIGHT PRIZE MEDALS AWARDED.

# GOODALL'S HOUSEHOLD SPECIALITIES.

## YORKSHIRE RELISH.

Most Delicious Sauce in the World. Bottles, 6d., 1s., & 2s. each.

## GOODALL'S BAKING POWDER.

The Best in the World. 1d. Packets; 6d., 1s., 2s., and 5s. Tins.

## GOODALL'S EGG POWDER.

One 6d. Tin is equal to 25 Eggs. In 1d. Packets; 6d., 1s., and 5s. Tins.

## GOODALL'S CUSTARD POWDER.

Delicious Custards without Eggs. In Boxes, 2d., 6d., & 1s. each.

## GOODALL'S BLANCMANGE POWDER

Delicious Blancmange in a Few Minutes. Boxes, 6d. and 1s. each.

## GOODALL'S QUININE WINE, B.P.

Best Tonic yet Introduced. Bottles, 6d., 1s., and 2s. each.

## GOODALL'S GINGER-BEER POWDER.

Makes the Best Ginger-Beer. Packets, 3d. and 6d.

## GOODALL'S BRUNSWICK BLACK.

For Painting Stoves, Grates, Iron, Tin, &c. 6d. & 1s. Bottles.

## GOODALL'S LAVENDER WATER.

Rich and Lasting Perfume. Bottles, 1s., 2s., and 5s. each.

## GOODALL'S PLATE POWDER.

For Polishing and Cleaning all Metals. Boxes, 6d., 1s., and 2s.

## GOODALL'S JELLY SQUARES.

Make a Delicious and Nutritious Jelly. In  $\frac{1}{2}$ -pint, 1-pint, and Quart Boxes, 3d., 6d., and 1s. each.

PROPRIETORS—GOODALL, BACKHOUSE & CO., LEEDS.

## PATENT MEDICINES

AND

## DRUGGISTS' SUNDRIES.

Monthly Price List of Patent Medicines, Druggists' Sundries, &c., will be sent post free on application to

GOODALL, BACKHOUSE & CO., LEEDS.

ESTABLISHED NEARLY FIFTY YEARS.

PRIZE MEDALS AWARDED AT ALL THE EXHIBITIONS.

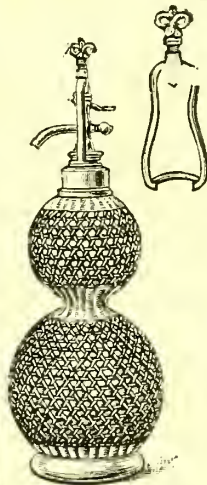
## EUGENE GERAUT & CO.'S

LATEST

## NEW PATENT SELTZOGENE

PATENT No. 18305.

For the immediate Preparation of Seltzer Water, Eau de Vichy, Soda Water, Sparkling Lemonade, Aërated Waters, &c.



Finding so many complaints through the screws of Seltzogenes getting worn and Customers not screwing taps on tight enough, E. G. & Co. have patented the above improvement in their Seltzogenes, which differs materially from the numerous kinds that have from time to time been introduced, there being no screwing required, thus the machines cannot easily get out of order.

In place of Screw on Tap, there is a Clip, which is easily fastened to the Seltzogene, any Child being able to Screw the Little Key at Top, and making perfectly Air-tight the Apparatus.

WEAR AND WORKING GUARANTEED.  
NO MORE SCREWING REQUIRED. TAP  
CANNOT GET CORRODED.

CONTRACTORS TO HER MAJESTY'S GOVERNMENT.

SOLE ADDRESS—

139 & 141 Farringdon Rd.,  
LONDON, E.C.

Seltzogenes and Gazogenes Repaired.

**"DORINA"**  
**NURSERY**  
**BISCUITS**

Every Chemist is invited to send for FREE FULL-SIZE SAMPLE TIN.

"They possess a distinct nutritive value."—*The Lancet*.

"We can recommend them to the notice of the profession"—*British Medical Journal*.

SUPPLIED TO CHEMISTS,

1/2 Tins, 10/6 per dozen.

Wholesale of all Wholesale Houses.

Manufacturer: H. B. CHIBNALL,  
HAMMERSMITH, LONDON. W.

# STOKES' CASH TILL.

REDUCED PRICE

## 50/-

(Sent on Trial seven days, on receipt of two references).

Particulars and Testimonials on application.

G. R. STOKES & CO., LIM.,  
HANLEY, STAFFS.



# MEADOWCROFTS'

## CONCENTRATED SOLUBLE FRUIT

# ESSENCES

## ARE NOTED

For the Excellent Flavour and Aroma they impart to the beverages prepared with them.

### SPECIALITIES.

Sol. Ess. Lemon, double the usual strength.  
 „ „ Ginger Ale, double the usual strength.  
 „ „ Jamaica Ginger, of great strength.  
 „ „ Orange, of great strength.  
 „ „ Hop Ale, double strength.  
 Foamine, double strength.

## STEAM FILLER

We are the makers of what is undoubtedly the very best Steam Filler for Codd's bottles, and it is in constant use by many of the best makers in the country. It is fitted with a perfect Syrup and Water Saving Motion, and we guarantee it to fill perfectly 80 to 100 dozen large bottles per hour with one lad only.

Price £26 net cash, or with Improved Syrup Indicator, 30s. extra.

OVER 150 OF THESE MACHINES ARE IN ACTUAL WORK.

## W. MEADOWCROFT & SON, LIMITED,

FRUIT ESSENCE MANUFACTURERS AND AERATED WATER ENGINEERS,

### REGENT STREET, BLACKBURN, LANCs.

Also at 50 Robertson Street, Glasgow.



# SYPHONS & SELTZOGENES



Messrs. J. BARRE JOHNSTONE & CO., 20 Loftus St., Sydney, N.S.W.  
Agents for New South Wales, Queensland, and New Zealand.

**SODAWATER  
MACHINERY**  
AND APPLIANCES  
**BRATBY & HINCHLIFFE LTD**  
ANCOATS 146 MINORIES  
**MANCHESTER & LONDON**  
81 ROBERTSON STREET, GLASGOW.

## PRICES.

SYPHONS ... 1/6 1/8 and 1/10 each.

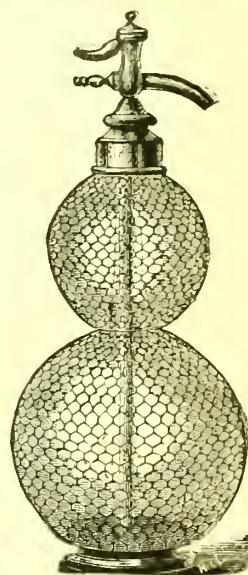
## SELTZOGENES.

1	2	3	4	5	8 pint.
6/-	6/8	7/6	8/6	10/5	16/- each.

Including two funnels and stopper for charging.  
The tops of these Seltzogenes are made of pure block tin, guaranteed.

All our Seltzogenes are manufactured on the well-known "Fevre" System, and each one is thoroughly tested before leaving the works.

Messrs. NOYES BROS., 43 Queen Street, Melbourne, Victoria,  
Agents for Victoria, South and West Australia, and Tasmania.



## H. P. TRUEFITT'S SPECIALITIES FOR THE HAIR.

Moral Extract, 3/6, 5/-,  
10/6, 21/-

Egg Yulep, 2/-, 4/-  
CONCENTRATED

Egg Yulep, 2/6,  
5/-, 10/6.

Golden Fluid,  
10/6, 21/-

TEURON,  
1/6,  
&c.

Stimulating Lotion, 5/-,  
10/6.

Astringent and Tonic  
Lotion, 5/-, 10/6.

Quinine and Arnica  
Hair Wash, 3/6,  
5/-, 10/6, 21/-

Arnica Wash,  
3/6, 5/-,  
10/6,  
&c.

**EUCHRISMA.**  
Combines in one clear fluid every valuable  
component both of a Hair Grate and Wash,  
3/6, 5/-, 10/6, 21/-.

**EAU RACINE.**  
For restoring the original colour of Grey Hair;  
superior to all other Restorers, being perfectly  
simple in its composition. Price 6/-.

An elegant Preparation for  
the Hair and Beard.  
Price 2/6, 3/6, 5/-, 10/6, 21/-.

## BRILLANTINE

H. P. TRUEFITT'S TONIC TOOTH BRUSH

(BY ROYAL LETTERS PATENT)

PRICE ONE SHILLING.

20 & 21 Burlington Arcade; 13 & 14 Old Bond St., London.

## ONE BY ONE!

**PASCALL'S SILVER CACHOUS**  
BRILLIANTLY POLISHED.

FRAGRANT AROMA.

FINEST IN THE MARKET.

IN ROUND PATENT BOXES, MADE TO RELEASE ONE BY ONE.

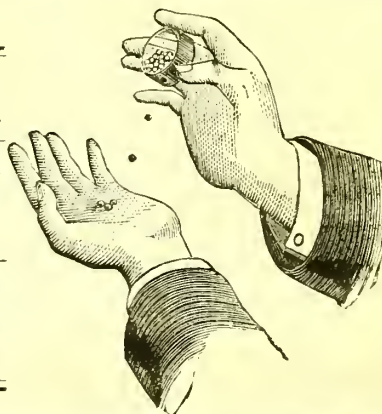
QUITE  
NOVEL

PREFERRED  
TO ALL  
OTHERS.

In 1 dozen

Outer

Boxes.



Most  
Saleable

2/3  
per dozen.  
In  
1-lb. Bottles  
3/6  
per lb.

Of the usual Wholesale Houses, and of the Manufacturer,

JAS. PASCALL, Blackfriars Rd., LONDON, S.E.



# ESSENCE OF BEEF.

A Special MEAT JELLY prepared from finest fresh ENGLISH OX BEEF, extracted by gentle heat without added water, and guaranteed absolutely pure.

This Essence is enclosed in a Patent Porcelain-lined package, which gives it a distinct advantage over other brands of BEEF ESSENCE or MEAT JELLY, there being an



increasing anxiety in the minds of the Medical Profession concerning the contaminating action of tin and solder upon articles of food, especially food designed for invalids.

By means of a patent self-contained cutter, the outer Tin is opened in the most effective manner, leaving a thin loose lid (\*) for temporarily covering the contents.

This Essence of Beef can be safely

relied upon as an admirable stimulant and restorative in cases of enfeebled digestion, nervous exhaustion, loss of blood, sudden shock, or in severe illness where no other food can be tolerated by the patient.

MANUFACTURED BY  
**BOVRIL, LIMITED, FOOD SPECIALISTS, LONDON.**

DIRECTORS--

The Right Hon. LORD PLAYFAIR, K.C.B., LL.D., Chairman; ROBERT FARQUHARSON, Esq., M.D., M.P.;  
&c., &c.



**PERFECT**  
**MEAT PREPARATIONS**  
AND  
**DELICACIES FOR INVALIDS.**

Put up in Glass.—Free from Metallic Contamination.

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**MEAT JUICE**

(CONCENTRATED).

A Superior Preparation made from the best English Beef, prepared by a new process which preserves the natural nutrient and stimulant properties of meat in the most suitable condition for immediate assimilation.

Pleasant and agreeable to the taste. Can be retained by the stomach in all cases.  
Its restorative effects are prompt.

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**Essence of Beef.**

**Essence of Chicken.**

**Pure Beef Tea (Concentrated).**

**Invalid Turtle Soup.**

**Savoury Meat Lozenges,  
Nutrient Suppositories.**

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SPECIALLY PREPARED BY

**THE VIKING FOOD AND ESSENCE CO.**

At their new Factory, specially built for the manufacture of the above products,

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# PETER TYRER'S SAUCES

WORCESTER, READING, HARVIE, YORKSHIRE, AND "BOROUGH" KETCHUP.

SILVER MEDAL.

		Per gross.	Extra quality.			Per gross.	Extra quality.
1d. Sample Bottles, dozen parcels	..	5/3	6/3	1/2 Bottles, flat or round, reputed half-pints	..	16/-	26/-
" " 1/2-gross boxes	..	5/9	6/9	" " pints	..	26/-	38/-
1d. Giant " dozen parcels	..	6/6	8/5	1 Pint "Imperial", round stoppered bottles	..	52/-	62/-
" " 1/2-gross boxes	..	7/-	9/-	12 1/2-Gallon Casks (casks free)	..	20/-	32/-

**ROYAL CAFE SAUCE, a Rich Fruity and Exquisite Flavour.**

Square Glass Stoppered Bottles, containing nearly 1/2-pint Imperial, 42/- per gross. Sample Bottles at 7/- per gross.

**MANUFACTORY — 30 SOUTHALL PLACE, LONG LANE, BOROUGH, LONDON, S.E.**  
**CHIEF SCOTCH AGENCY — West Nile Street, GLASGOW.**



## ROBINSON'S LIEBIG'S BEEF WINE.

Composed of Liebig's Extract of Beef, Extract of Malt, and sound Port Wine.

### REPORT ON BEEF WINES.

From the results of my Analyses of various Beef Wines I have had occasion to examine, none have equalled as regards strength, purity of ingredients, and (of no less importance) the skilful and judicious manner in which the respective ingredients have been proportioned and combined, the Liebig's Beef Wine manufactured by Mr. B. Robinson, of Pendleton, Manchester.

It is in every sense a reliable preparation, embodying in a pleasing and palatable form all the acknowledged medicinal and nutritive properties pertaining to Liebig's Extract of Meat, Extract of Malt, and sound Port Wine.

**WILLIAM ELBORNE, F.C.S., F.L.S.,**

Lecturer on Materia Medica in the Owens College, Manchester (Victoria University).

December 13, 1883.

## ROBINSON'S ORANGE WINE.

Specially prepared for Quinine Wine, does not deposit, will keep good in any climate, and well adapted for Export Trade. Supplied in Casks containing 9, 18, 30, 60, or 120 Gallons. Terms on application. [2]

## PHARMACEUTICAL SHERRY WINE.

This Wine is well adapted for Pharmaceutical Preparations, and is the strength ordered by the B.P. Price, in 6-Gallon Casks, 5/6 per gallon; in 2 Gallon Jars, 6/- per gallon, carriage paid. Casks charged 7/6. Jars 2/6, and allowed if returned. Cash or satisfactory reference to accompany order.

**B. ROBINSON, Distiller and Brewer of British Wines, Church St., Pendleton, Manchester.**

## ROWNTREE'S

The "MEDICAL PRESS AND CIRCULAR" :—

"Certainly this preparation is of delicate flavour . . . It is perfectly soluble . . . The small quantity required for the immediate production of a cup of excellent cocoa will ensure for the 'Elect Extract' a favourable reception at the hands of persons of weak digestion, and all who prefer this wholesome beverage to tea and coffee."

The "BRITISH MEDICAL JOURNAL" says:—

"Rowntree's Cocoa Extract is one of the best. Its flavour and aroma are good. Cocoa thus prepared is one of the most digestible articles of food."

**YORK, ENGLAND.**

## HOLLOWAY'S PILLS & OINTMENT

Have the Largest Sale of any Medicine in the World.

MANUFACTURED ONLY AT

**PROFESSOR HOLLOWAY'S ESTABLISHMENT,**  
78 New Oxford St. (late 533 Oxford St.), London,

And sold at 1s. 1 1/2d., 2s. 3d., 4s. 6d., 11s., 22s., and 33s. each Box or Pot. Chemists and Druggists selling "Holloway's Pills and Ointment" can, on application to the above address, or to the Wholesale House with whom they deal, be supplied free of charge with Handbills and Posters with their name and address printed at foot.

Wholesale Terms see List of "Proprietary Articles" in most Price Currents.

**DR. LANGEN'S**

## SUGAR OF MILK

**GUARANTEED ABSOLUTELY PURE.**

In 1-lb. Tins only.

To be obtained of all Wholesale Houses, or of

**Burroughs Bros., 66 Basinghall St., London, E.C.**

# POISONING.

To Avoid Poisoning  
by Impure Water use  
the Mawson Filter.

The Mawson Filter Co., Newcastle-on-Tyne, and all Wholesale Houses.



# WARNER'S SUGAR-COATED PILLS

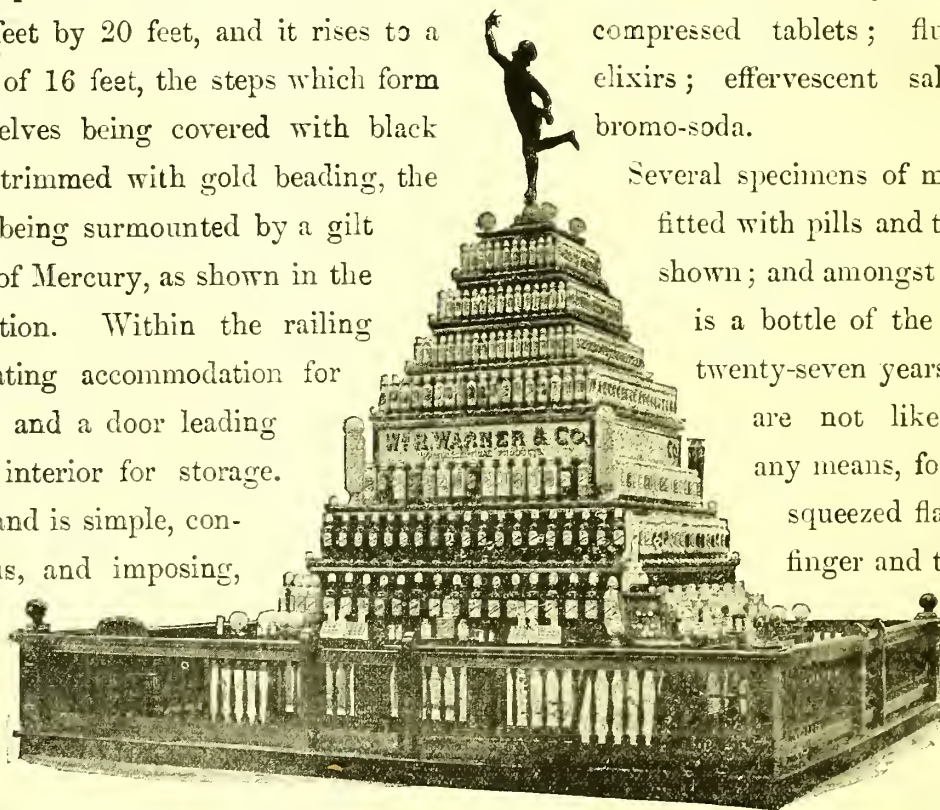
What THE CHEMIST AND DRUGGIST says of the Columbian Exhibit, World's Fair, Chicago:—

"Ascending to the Liberal Arts Gallery in the Manufactures Building, where all the firms who come within the group of manufacturing pharmacists are placed, amongst the first that we meet is the pyramidal monument of sugar-coated pills erected by WM. R. WARNER & Co., of Philadelphia. The base of the pyramid is 20 feet by 20 feet, and it rises to a height of 16 feet, the steps which form the shelves being covered with black velvet trimmed with gold beading, the whole being surmounted by a gilt statue of Mercury, as shown in the illustration. Within the railing are seating accommodation for visitors and a door leading to the interior for storage. The stand is simple, conspicuous, and imposing,

without any attempt at a cabinet-maker's display or of beautiful cut bottles.

The bottles containing the various products are of the Warner pattern, moulded with a base similar in appearance to goblets. This collection comprises sugar-coated and gelatine-coated pills; flat, oval, white, blue, pink, and yellow compressed tablets; fluid extracts; elixirs; effervescent salts, including bromo-soda.

Several specimens of medicine-chests fitted with pills and tablets are also shown; and amongst the curiosities is a bottle of the Warner pills twenty-seven years old. These are not like marbles by any means, for they can be squeezed flat between the finger and thumb."



These unequalled products of elegant pharmacy can be obtained from

## F. NEWBERY & SONS,

(ESTABLISHED A.D. 1746)

King Edward St., LONDON, E.C.

Complete List free on request to any part of the world.



Telephone Number, 1852.

Telegraphic Address—CHEMICUS LONDON.

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## CLASSIFIED LIST OF ALL ADVERTISERS

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### ACETIC ACID

Fuerst Bros.  
Lorenz, H.  
Morris & Callard (Salts)

### ACIDS

Boulton, J., & Co., Lim.  
Typeke & King

### ADVERTISING SPECIALITIES

Hildesheimer, A.  
Lawton, J. W., | Sears, F. W.

### AERTE & MINRLS

Apollinaris Co.  
Barnett & Foster  
Burroughs, Wellcome & Co.  
Burton's Malvern Waters

Cantrell & Cochrane  
Chemists' Aerated Waters  
Association, Lim.  
Ellis & Son (Ruthin)

Franz, Josef  
Idris & Co., Lim.  
Ingram & Royle

Jewsbury & Brown  
Johannis Co.  
Kimmond & Co.

Levico Water  
Mills & Co. (Bourne)  
Roshbach Water Co.

### DITTO PLANT

[See SYPHONS and ESSENCES.]  
Barnett & Foster  
Bratby & Hinchliffe, Lim.

Evans, Sons & Co.  
Gueret Freres  
Meadowcroft & Son

Rylands, Dan, Lim.  
Tyler, Hayward, & Co.

### ALKALOIDS

Edward & Sons (Cinchona)  
Emith, T. H., & Co.

### AGNCIES ABROAD BOOKS

Anstruther Drug Co.  
Kemphorne, Prosser & Co.  
Lennon, B. G., & Co. (N.Z.)

### ACIDS

Peake, Allen & Co.  
Prosser, Taylor & Co.  
Soul, W. H., & Co.

### AMMONIA

May & Baker, Lim.  
White, A., & Sons

### APPARATUS

Bennett, Sons & Shears  
Berend, O., & Co.  
Christy, T., & Co.

Forrest, H. P.  
Hicks, J. J., | Ohlson, A.  
Orme, J., & Co. (Scientific)

Perkin, Son & Raymond  
Poths, H., & Co.

### BAKING POWDER

Goodall, Backhouse & Co.

### BANDAGES

Bailey, W. H., & Son  
Robinson & Sons

### BATH & FLESH GLOVES

Barclay & Sons, Lim.  
Chemists' Association, Lim.

Maw, S., Son & Thompson  
Pattison, G., | Solport Bros.

### BICARBONATE SODA

Brunner, Mond & Co., Lim.  
Howards & Sons  
May & Baker, Lim.

### BISMUTH PREP.

Heaton, Squire & Francis  
Hewlett & Sons  
Howards & Sons

May & Baker, Lim.  
Fynes & Co. (Tyner, T., & Co.)

White, Alfred, & Sons

### BOOKS

Harvey, Dr., M.D.  
Lewis, H. K.

### BORAX

Howards & Sons  
Mack's Starch

### BOTTLES

Aire & Calder Bottle Co., Lim.

### BOTTLES

Barnett & Foster  
Barrett, R. H.  
Bratby & Hinchliffe, Lim.

Evans, Sons & Co.  
Gilbertson, H., & Sons

Hearn, Wright & Co.  
Isaacs & Co.

Johnsen & Jørgensen  
Kilner Bros.

Maw, S., Son & Thompson  
Poths, H., & Co.

Rylands, Dan, Lim.  
Toogood, W.

### BOXES

Austin & Co. (Cardboard)

Ayrton & Saunders  
Crowden & Garrod

Evans, Sons & Co.  
Kent, G. B., & Sons

Kilner Bros.  
Maxime & Co.

Robinson & Sons  
Rylands, Dan, Lim.

### BRUSHES

Crowden & Garrod  
Evans, Sons & Co.

Kent, G. B., & Sons

BUNSEN BURNERS

Berend, O., & Co.

Boulton, J., & Co., Lim.

Crawshaw & Co.

Hatrick & Co., Lim.

Tomlinson & Hayward

### CACHOUS

Biscards & Co.  
Blyton, Astley & Co.

### CAMPOR

Fuerst Bros., | Howards & Sons  
May & Baker, Lim.

### CAPSULES

Denoual, J. (Medicinal)

### CAPSULES

Duncan, Flockhart & Co.  
Evans, Sons & Co.  
Hatrick & Co., Lim.

Hclroyd, J., & Co. (Lim. Moulds)

Hooper, B., & Co.

Lofthouse & Saltmer  
Richardson, John, & Co. (Leicester), Lim.

### CARBOLIC ACID

Calvert, F. C., & Co.  
Mason, C. E., & Co.

### CSCRA SAGRADA

Anderson & Co.  
Duncan, Flockhart & Co.

Evans, Sons & Co.  
Farris & Co., | Moss, J., & Co.

### CASTOR OIL

Allen & Hanburys  
Christy & Co. (Aromaticum)

### CATALOGUES & PRICE LISTS

Burroughs, Wellcome & Co.  
Gibson, R., & Sons

Lorimer & Co.  
Maw, S., Son & Thompson

May, Roberts & Co.

Newbery, F., & Sons

Sanger & Sons

CERESINE WAX

Boehm, Fredk.

### CHECK TILLS

National Cash Till Co.  
Patent Voucher Check Till Co., Lim.

### CHEMICALS

Boehmer, C. F., & Schler  
Boulton, J., & Co., Lim.

### CHEMICALS

Bramwell, J., & Son

### CHEMICALS

Brunner, Mond & Co., Lim.  
Fletcher, Fletcher & Stevenson  
Fuerst Bros.

Goodall, Backhouse & Co.

Hill, A. S., & Son

Hodkinson, Treacher & Clarke  
Howards & Sons (Farnham)

### CHEST PROTECTORS

Levermore, Aug., & Co.  
Lofthouse & Saltmer

### CHLOR. OF LIME

Lorenz, H.  
May & Baker, Lim.

Morris & Callard, Moss & Co.  
Smith, T. H., & Co.

### CHLOR. OF LIME

Typeke & King  
Tyner, T., & Co.

### CHLOR. OF LIME

Washington Chemical Co.  
White, A., & Sons

Zimmerman, A. & M.

CHLOR. OF LIME

Duncan, Flockhart & Co.

Macfarlan, J. F., & Son

Smith, T. H., & Co.

Wright, Layman & Umlay

Zimmerman, A. & M.



**CHLORODYNE**

Bylton, Astley & Co.  
Davenport (Browne's)  
Towle, A. P., & Son

**COCA & CHOCOLTE**

Cadbury Bros. | Christy & Co.  
Compagnie Française  
Koutures & Co.

**COCA WINE**

Armbricht, Nelson & Co.  
French Hygienic Soc.  
Stephen Smith & Co. (Hall's)

**COCAINE-HYDRO.**

Howards & Sons

**COD LIVER OIL**

Allen & Hanburys  
Blensdale & Co.  
Burroughs, Wellcome & Co.  
Evans, Sons & Co.  
Hill, A. S., & Son  
Howards & Sons  
Robinson & Co.  
Smith, T. & H., & Co.  
Woolley, Sons & Co.

**COFFEE**

Symington, T., & Co. (Coffee  
Essences)  
White, Fairchild & Co.

**COLAPSEI TUBES**

Betts & Co.

**COMP. MEDICINS**

Allen & Hanburys  
Bylton, Astley & Co.  
Burroughs, Wellcome & Co.  
Fuerst Bros.

Hooper, B., & Co. | Leo & Co.  
Lloyd, T. Howard & Co.

**CONCENT. LIQES.**

Fletcher, Fletcher & Stevenson  
Lloyd, T. Howard & Co.

**CORN CURES**

Chong, D., | Pattison, G.  
Solport Bros.

**COTTON WOOL**

Haynes, G., & Co. (Absorbent)  
Robinson & Sons (Absorbent)  
Sanger, J., & Sons

**CRSHD LINSEED**

Mumford, S. G.

**DENTIFRICES**

Bailey's Toilet Co.  
Beecham, T. & Co.  
Bromley, H., & Co.  
Dorothy Dentifrice Co.  
Hanson, O.  
Jamieson, W., & J.  
Jewsbury & Browla  
Lakeman, J. C.  
Quelch, H. C.  
Ricksacker, Uno  
Robertshaw & Co.  
Stevens, P. A.  
Sutton, O., & Co.  
Thompson & Capper  
Warrick Bros. | Wilson, A.  
Woods, W. (Arecia Nut)

**DISINFECTANTS**

Blyth, Astley & Co.  
Brooks, T.  
Calvert, F. C., & Co.  
Drysdale, J. W., & Co.  
Dusseck Bros. & Co.  
Fletcher Bros. & Co.  
Hebden, W. C.  
Government Sanitary Co.  
Grindley & Co., Lim.  
Jzal  
Jey's Sanitary Compounds Co.  
Muckey, Mackey & Co.  
Mason, C. E., & Co.  
May & Baker, Lim.  
National Chemical Co.  
Sanitas Co., Lim.  
Seabury & Johnson  
Tyrer, T., & Co.

**DOG MEDICINES**

Heald, A. J.  
Neratt's Patent, Lim.

**DRUGS**

Hopt, K.

**DRUGGISTS' SUN.**

Ayrton & Saunders  
Bailey, M., & Co.  
Barclay & Sons, Lim.  
Bush, H. W., & Co.  
Chemists' Association, Lim.  
Chemists' Mineral Water  
Association, Lim.  
Crowden & Garrod  
Evans, Lescher & Webb  
Evans, Sons & Co. (Savars)  
Fordham, W. B., & Sons, Lim.  
Furkes & Co.  
Guernsey, H., & Sons  
Hockin, Wilson & Co.  
Idris & Co., Lim.  
Jackson, T.  
Kay Bros., Lim.  
Lindner, M.  
Lynch & Co.  
Maw, S., Son & Thompson  
May, Roberts & Co.  
Newbery, F., & Sons  
Quelch, H. C.  
Sanger & Sons  
Schutze & Co.  
Tidman & Son | Toogood, W.  
Tyne Rubber Co.  
Wood, Vincent | Young, J.

**DRYSALTERIES**

Browning, J. H., & Co.  
Burton, W., & Sons

**DYES, &c.**

Ayrton & Saunders  
Burton, W., & Sons  
Crawshaw & Co.  
Hartick & Co., Lim.

**EAU DE COLOGNE**

Farina, J. M.  
Hockin, Wilson & Co. (Farina)  
Martin, Maria (Nun)  
Moenich, Oscar, & Co.  
Muhens, F.

**ELECTRIC APPAR.**

Darton, F., & Co.  
Gent & Co. | Orme & Co.

**EMBOCCATION**

Day & Sons

**ENEMAS**

Barclays, Lim.  
Evans, Sons & Co.  
Sanger & Son

**ENGRAVERS**

Corsan, J. R.

**ESSENCES**

Boehm, Fredk.  
Boulton, J., & Co. (Lim.)  
Brady & Hinchcliffe, Lim.  
Burgoyne, Burdidge & Co.  
Bush, W. J., & Co.  
Fletcher, Fletcher & Stevenson  
Goodall, Backhouse & Co.  
Idris & Co., Lim.  
May & Baker, Lim.  
Meadowcroft & Son  
Newball & Mason  
Rylands, Dan, Lim.  
Stevenson & Howell  
Tyrer, P. (Anchoviss)  
Tyrer, T., & Co.  
Woolley, Sons & Co.

**ESSENTIAL OILS**

Allen, Stafford, & Sons  
Barrett, A. A.  
Boehm, Fredk.  
Brunnerstaedt & Loders  
Bush, W. J., & Co.  
Clay, Dod & Co.  
Cocking & Co. (Japan Pepper)  
Dodge & Ude  
Evans, Sons & Co.  
Hodgkinson, Treacher & Clarke  
May & Baker, Lim.  
Meadowcroft & Son  
Rylands, Dan, Lim.  
Sozio & Andrioli  
Stevenson & Howell  
Symes & Co.  
Treat, R. C.  
Vogt, G., & Co.  
Warrick Bros.  
Witrofsky, E.  
Wright, Layman & Umney

**ETHER**

Duncan, Flockhart & Co.  
Howards & Sons  
May & Baker, Lim.  
Robbins, J., & Co.  
Tyrer, T., & Co.  
White, A., & Sons  
Woolley, Sons & Co.  
Wright, Layman & Umney

**EUCALYPTUS**

Bickfords | Bosisto's  
Drysdale, J. W., & Co.  
Evans, Lescher & Webb  
Fletcher, Fletcher & Stevenson  
Grimwade, Ridley & Co.  
Langland, Mackay & Baker  
Mackay, Mackay & Co.  
Murdock, J., & Co.  
Tasmanian Eucalyptus Oil Co.  
Vogt, G., & Co.  
Woods & Co.

**EXALGINE**

Kuhn, B.

**EXTRACT MEAT**

Brand & Co.  
Bush's Liquid Beef  
Idris & Co. (Viking Co.)  
Liebig Co.  
Mason, G., & Co., Lim.  
Wyeth, J., & Brother

**EXTRACTS, FLUID**

Allen & Hanburys  
Burgoyne, Burdidge & Co.  
Evans, Sons & Co.  
Fletcher, Fletcher & Stevenson  
Heaton, Squire & Francis  
Hooper, B., & Co.  
Lloyd, T. Howard, & Co.  
Moss & Co.  
Potter & Clarke  
Tyrer, T., & Co.  
Wright, Layman & Umney

**FEEDG BOTTLES**

Burroughs, Wellcome & Co.  
(Thermo Safe)  
Chemists' Association, Lim.  
Evans, Sons & Co.  
Hearn, Wright & Co.  
Hockin, Wilson & Co.  
Kilner Bros. | Lynch & Co.  
Marriott, E., & Co.  
May, Roberts & Co.  
Maw, S., Son & Thompson  
Spence & Co.  
Surrey Packing Co.

**FILTERS**

Berkfeld Filter Co.  
Fordham, W. B., & Sons, Lim.  
Mawson Filter Co.  
Silticated Carbon Filter Co.

**FLY PAPERS**

Ford, Shapland & Co.  
Strong, Christie  
Turnbridge & Wright

**FOOD (Infants' & Invalid's)**

Allen & Hanburys  
Benger's Food  
Brand & Co.  
Chibnal, H. B.  
Evans, Sons & Co.  
Frame Food Co., Lim.  
Goodall, Backhouse & Co.  
Heaton, Squire & Francis  
Liebig Co.  
Lorimer & Co.  
Mason, G., & Co., Lim.  
Nestlé, H.  
Ridge, Dr.  
Tyrer, P.  
Viking Food Co.  
Wyeth, J., & Bro.

**FORMULA**

Brooks, T.

**GINGER ALE**

Mills, K. M., & Co.

**GLYCERINE**

Bylton, Astley & Co. (Pastilles)  
Boehm, F. | Fink & Co.  
Fuerst Bros.  
Greiff, H. W., & Co.  
Price's Candle Co., Lim.  
Watson & Sons

**GOUT & RHEU-**

**MATIC PILLS**

Bromley, C.  
Eade, Geo.  
Proul & Harsant (Blair's)

**GRANULAR PREP.**

Bishop, A., & Sons  
Bylton, Astley & Co.  
Evans, Sons & Co.  
Heaton, Squire & Francis  
Lloyd, T. Howard, & Co.  
Wright, Layman & Umney

**GUM**

Fink & Co. (Arabic, &c.)  
Levermore, Aug., & Co.

**HAIR PREP.**

Anglo-American Drug Co.,  
Lim.

Chesbrough Co.  
Edwards & Co.  
Ricksacker, Uno  
Truedt, H. P., Lim.

**HERB BEER EXTS**

Newball & Mason  
Potter & Clarke

**HOMOPATHIC**

Epps & Co.  
Keene & Ashwell  
Leath & Ross  
Thompson & Capper  
Watson & Wates

**HYPOPHOSPHITES**

Duncan Flockhart & Co.  
Fellows  
Fletcher, Fletcher & Co.  
Symes & Co.  
Tyrer, T., & Co.

**INDIARUB. GOODS**

Tyner Rubber Co.

**INHALERS**

Burroughs, Wellcome & Co.  
Hockin, Wilson & Co.  
Krohn & Sememan  
Spinoone, Co., The  
Toogood, W.

**INK [See MARKING INKS]**

Bewley & Draper

**INSECTICIDES**

Rooke, Tompsitt & Co.  
Steiner & Co.

**INSURANCE**

London and Lancashire Fire  
Insurance Co.

**JARS**

Rylands, Dan, Lim.

**KETCHUP**

Tyrer, P.

**KOLA PREPRTN**

Christy, T., & Co.

**LARD**

Ewen, J., & Sons

**LIME JUICE**

Evans, Sons & Co.  
Lorimer & Co.

**LINT**

Liverpool Lint Co.  
Maw, S., Son & Thompson  
Newsome, C.  
Robinson & Sons

**LIQUORICE**

Comis Di Lugo & Co.

**LITHIA**

Fuerst Bros.

**LOZENGES**

Allen & Hanburys  
Bylton, Astley & Co.  
Davidson & Gray  
Gibson, H., & Sons (Manfrs.)  
Hill & Son  
Jackson, T.  
Lorimer & Co.  
Pascall, J.  
Raines & Co. | Warrick Bros.

**MACHINERY**

Bennett, Sons & Shears  
Burroughs, Wellcome & Co.  
Gardner, W.  
Ohlson, A.  
Pindar, J. W.  
Strutlers & Craig (Sifting)  
Werner & Pfleiderer (Knead-  
ing and Sifting)

**MAGNESIA**

Bush, W., Son & Co.  
Duncan, Fuller & Co.  
Evans, Sons & Co.  
Henry, T., & W. (Caloined)  
Hill, A. S., & Sons  
Washington Chemical Co.

**MALT EXTRACT, &c.**

Allen & Hanburys  
Anderson & Co.  
Burroughs, Wellcome & Co.  
(Kieper's)  
Glennening, W.  
Heaton, Squire & Francis  
Lorimer & Co.  
Moss, J., & Co.  
Raines & Co.  
Richardson, John, & Co. (Le-  
cester), Lim.  
Robinson & Co.

**MARKING INKS**

Bond, John (Crystal Palace)  
(Ink and Pencils)

**MEDICINE CHSTS**

Burroughs, Wellcome & Co.  
Day, Son & Hewitt (Veterinary)  
Dent & Sons (Veterinary)

**MENTHOL**

Burroughs, Wellcome & Co.  
Christy, T., & Co.  
Cocking & Co.  
Duncan, Fuller & Co.  
Evans, Sons & Co.  
Hockin, Wilson & Co.  
Tyrer, P. | Vint, T. D.

**MERCURIALS**

Fuerst Bros.  
Howards & Sons  
May & Baker, Lim.  
Tyrer, T., & Co.

**METH. SPIRITS, &c.**

Boord & Son | Burrough, J.  
Jones & Co.  
Phillips, G., & Co.  
Smith, S., & Co.

**METHYLENE**

Robbins, J., & Co.

**MICROSCOPES**

Darton, F., & Co.  
Perken, Son & Rayment

**MILK**

Nestlé, H. (Condensed)

**MORPHIA**

Macfarlan, J. F., & Co.  
Smith, T. & H., & Co.

**OILS, PAINTS, &c.**

Browning, J. H., & Co.  
Fox, W., & Sons  
Pinchin, Johnson & Co.

**OINTMENT BASES**

Burgess, E.  
Burgess, E., Jun.  
Burroughs, Wellcome & Co.  
Tyrer, T., & Co.  
Chesbrough Co. (Vaseline)  
Christy, T., & Co.  
Lanoline  
Lloyd, T. Howard, & Co.  
Richardson, J., & Co. (Lece-  
ster), Lim. (Anaspaline)

**OPIUM**

Hopt, E.

**OPTICIANS**

Botwright & Grey  
Darton, F., & Co.  
Perken, Son & Rayment

**OTTO OF ROSE**

Fuerst Bros.  
Witrofsky, J. R.

**OXIDE OF ZINC**

Hubbuck, T., & Son, Lim.

**PAPAIN**

Kuhn, B. (Dr. Finkler)

**PAT. MEDCNS, &c.**

Anglo-Amer. Drug Co., Lim.  
Atkinson & Barker (Infant  
Preserv.)  
Barclay & Sons, Lim.  
Beecham, T. (Pills)  
Bow's, Dr., Liniment  
Bromley, C. (Gout and Rheu.)  
Chemists' Association, Lim.  
Clark's Blood Mixture  
Congreve, G. F.  
Edwards & Son  
Evans, Lescher & Webb  
Fassett & Johnson  
Fanning (Powders)  
Goodall, Backhouse & Co.  
Holloway (Pills and Oint.)  
Hovenden & Sons  
Lalor (Phosphodyne, &c.)  
May, Roberts & Co.  
Newbery, F., & Sons  
Popular Remedies Mfg. Co.  
Roberts & Co. (Foreign)  
Rooke, Dr., Lim.  
Southall Bros. & Barclay  
Sutton, W., & Co.  
Wilson, A. (Bunter's Nervine)

**PEPSIN, &c.**

Armour & Co.  
Burroughs, Wellcome & Co.  
Chassaing & Co.  
Fletcher, Fletcher & Stevenson  
Kuhn, B.  
Lorimer & Co.  
Newbery, F., & Sons (Inglutin)  
Stern, G. & G.  
Warner & Co. (Inglutin)

**PEPPERMINT OIL**

Bush, W. J., & Co.  
Cocking & Co.  
Stevenson & Howell

**PERFUMERY**

Barclay & Sons, Lim.  
Blensdale & Co.  
Blondeau & Cie. | Boehm, F.  
Bylton, Astley & Co.  
Brooks, T. (Solid Perfums.)  
Brunnerstaedt & Loders  
Burroughs, Wellcome & Co.  
Bush, W., & Co.  
Chemists' Association, Lim.  
Chesbrough Co.  
Crown Perfumery Co.  
Evans, Sons & Co.  
Ewen, J., & Sons  
Farina, J. M.  
Hovenden & Sons  
Lanoline  
Mulhens, F.  
Newbery, F., & Sons (Boriso)  
Pears, A. & F., Lim.  
Price's Patent Candle Co.  
Ricksacker, Theo  
Saudou & Co.  
Sozio & Andrioli  
Tidman & Son | Treat, E. O.  
Truett, H. P., Lim.  
Warrick Brothers  
West, T. (Okell's Mosa)  
Woolley, Sons & Co. (Powder)  
Wright, Layman & Umney

**PEROX. OF HYDR.**

Burton, W., & Sons  
May & Baker, Lim.  
Raines & Co.

**PETROLEUM**

Allen & Hanburys  
Barclay & Sons, Lim.  
Dee Oil Co., Lim.  
Fuerst Bros. (Jelly)

**PHARM. PREPS.**

Allen & Hanburys  
Armour & Co.  
Arthur & Co.  
Baiss Bros.  
Barron, Harveys & Co.  
Biber, J. D., Boehm, F. & Co.  
Boehring, C. F., & Sons  
Boulton, J., & Co., Lim.  
Brady & Martin  
Bryce & Kumpf  
Burgoyne, Burdidge & Co.  
Burroughs, Wellcome & Co.  
Chassaing & Co.  
Duncan, Flockhart & Co.  
Farris & Co.  
Fletcher, Fletcher & Co.  
Giles, Schacht & Co.  
Heaton, Squire & Francis  
Hewlett & Son  
Howards & Sons  
Jey's Sanitary Compounds Co.  
Lambert Pharmacal Co.  
May & Baker, Lim.  
Moss, J., & Co.  
Oppenheimer, Son & Co.  
Potter & Clark  
Richardson, John, & Co. (La-  
Robert & Co. [cester], Lim.  
Smith, T. & H., & Co.  
Southall Bros. & Barclay  
Sutton, W., & Co.  
Symes & Co.  
Tyrer, T., & Co.  
White, Alfred, & Sons  
Woolley, Sons & Co.  
Wyeth, J., & Co.  
Zimmermann, A. & W.

**PHOTOGRAPHIC**

Artistic Photo Co.  
Barclay & Sons, Lim.  
Blackfriars Photographs Co.  
Boehm, Fredk.  
Botwright & Grey  
Burroughs, Wellcome & Co.  
Darton, F., & Co.  
Fuerst Bros.  
Howards & Sons (Chemists)  
Kent, G. B., & Co.  
Orme, J., & Co.  
Perken, Son & Rayment  
Ross & Co.  
Tyrer, T., & Co.  
White, Alfred, & Sons  
Zimmermann & Co.

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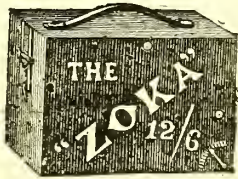
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## Summary.

THE BRITISH PHARMACEUTICAL CONFERENCE met at Nottingham this week.

Mr. Octavius Corder, of Norwich, presided at the meeting.

The Report of the Executive was satisfactory as to membership and work.

A brilliant and successful *conversazione* was held in the Castle on Monday evening.

The Presidential Address was botanical in nature, and was based primarily on Gerard's "Herbal."

Twenty papers were communicated to the meeting, and all but two were read. The discussions were good generally.

It was decided to meet next year in Oxford, an invitation from the chemists of that city having been submitted. Mr. N. H. Martin (Newcastle-on-Tyne) was chosen as president.

The social arrangements were excellent, and included excursions to Belvoir Castle on Tuesday, to Wollaton Hall on Wednesday, and to the "Dukeries" on Thursday. There was a smoking-concert on Wednesday evening, and special arrangements were made for the entertainment of ladies.

IN our Correspondence pages the discussion on the examinations is continued.

THE markets are very dull, and the drug-sales passed over this week without any notable feature.

A CHEMIST'S ASSISTANT, just out of his teens, has committed suicide in London. Prussic acid the instrument—love the cause.

THE Irish Pharmaceutical Council is still proceeding in regard to the sale of Kay's linseed by unqualified persons. Mrs. Ruppert's case is further postponed.

CARBOLIC ACID has caused the death of at least four persons during the past week. They were suicides, of which there is an exceptional number at present.

LOCAL SECRETARIES from various parts of Great Britain held a meeting at Nottingham, but did not admit reporters. We give an "official" account of the proceedings.

A FEW of the daily papers have commented on the Conference meeting, and acknowledge the public benefit conferred by the improved education of pharmacists.

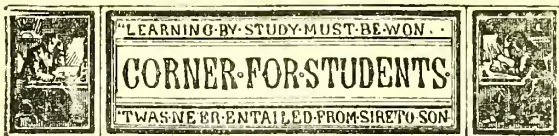
OUT of twenty-eight students who have sent in analytical reports to us this month twenty-five failed to detect an acetate. Mr. R. J. Moss bases a pertinent homily on this fact.

MR. JUSTICE NORTH has allowed the registration by a Mr. S. Kutnow of a label for Carlsbad powder bearing the representation of a well-known rock at Carlsbad. The Carlsbad authorities had opposed the registration, alleging that the use of such a device was calculated to deceive.

MR. MELLIN is applying for an injunction to prevent Mr. Timothy White, of Portsmouth, from selling his (Mellin's) infants' food with labels attached to the wrappers recommending another infants' food as preferable to all others. Mr. Justice North has refused to grant an interim injunction.

PROLONGING THE WORLD'S FAIR.—A meeting of British exhibitors was held in Chicago, on Wednesday, to hear particulars from the Assistant Director-General concerning the proposed mid-winter exhibition at San Francisco. Sir Henry Wood, the Secretary of the British Commission, informed the exhibitors that Great Britain would not be officially represented, while the Assistant Director-General stated that many British exhibitors had applied for space. A committee has been organised to represent British interests at the projected exhibition.





CONDUCTED BY RICHARD J. MOSS, F.C.S., F.I.C.

#### QUALITATIVE ANALYSIS.

A MIXTURE of not more than three salts will again form the subject of the exercise in qualitative analysis. The mixture is to be submitted to a thorough systematic examination, all its constituents are to be detected, and proof must be given that the substances detected are the only constituents of the mixture.

Students' applications for portions of the mixture (accompanied by a stamped and addressed envelope, not a stamp merely) will be received up to Wednesday, August 23, and the samples will be forwarded immediately. It should be understood that in this, as in other competitions, THE CHEMIST AND DRUGGIST recognises no distinction of sex.

Students' reports will be received up to Saturday, September 2. Each report should contain a concise account of the work done, and should include a list of the constituents detected; in this list any substance regarded as an accidental impurity should be distinguished from the essential constituents of the salts of which the mixture is composed.

#### REPORTS.

The subject of the last exercise was a mixture of 60 parts of calcium phosphate, 20 parts of barium nitrate, and 20 parts of magnesium acetate. Its calculated composition was:—

Ba	..	..	..	..	..	10.49
Ca	..	..	..	..	..	23.23
Mg	..	..	..	..	..	3.38
P <sub>2</sub> O <sub>5</sub>	..	..	..	..	..	26.77
NO <sub>3</sub>	..	..	..	..	..	9.51
C <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	..	..	..	..	..	16.62
						100.00

It contained a trace of magnesium carbonate.

There were 60 packets of the powder sent to correspondents, and only 28 reports were received. No fewer than 25 students failed to detect the acetate in the mixture, while 10 failed to detect barium; the other failures were calcium 5, magnesium 4, nitrate 4, phosphate 2.

This exercise illustrates in a forcible way the difficulty of identifying acetic acid. It might be supposed that everybody is more or less familiar with the external properties of acetic acid. There is no acid so much employed in food. In the form of vinegar it may be said to be in daily use in almost every household. One of the commonest ways of recognising it is by smell; few persons would be willing to admit that they are unable to recognise vinegar in this way, and, although it is not pure acetic acid, still the prevailing and characteristic odour of vinegar is due to acetic acid. When the packets of the mixture of salts were prepared for issue, the odour of acetic acid observed was so strong that an assistant remarked that every competitor would be sure to detect the acetate. A packet which had been kept for several weeks appeared to smell as strongly of acetic acid as it did when first made up. This gradual evolution of acetic acid is the result of a slow decomposition of the acetate, and the carbonate that was detected in the powder gives a clue to the character of the decomposition; it is, in fact, brought about by the action of the carbon dioxide of the

atmosphere. In the course of time the acetic acid would entirely disappear, carbonic acid taking its place. It is well to remember this fact, and to bear in mind that most of the acetates can be recognised by smell. It is certainly remarkable that so few of our competitors recognised the distinctly acetic odour of the powder. This, however, was not the only test applicable in the present case. The aqueous extract of the powder gave the red coloration with ferric chloride quite unmistakably. The reason why this reaction was not observed in so many cases is probably because so few know from experience what to observe. This reaction, like so many others, must be studied experimentally, if it is to be intelligently applied. The acetic radicle was also capable of detection by another test which gave a good idea of the quantity present. On adding mercurous nitrate to the aqueous extract of the powder, a precipitate consisting largely of mercurous acetate was thrown down. On warming the liquid, so much of the precipitate as consisted of mercurous acetate dissolved, and on filtering the hot solution a clear filtrate was obtained, from which, as it cooled, mercurous acetate separated in the strongly-reflecting micaceous scales so characteristic of the compound. On applying this test to a rather dilute solution quite a large precipitate was obtained.

#### PRIZES.

The First Prize for the best analysis of the mixture of salts has been awarded to

THOMAS BROWN, 69 Grove Road, Eastbourne.

The Second Prize has been awarded to

W. H. WAIND, 23 Cromwell Place, South Kensington.

#### Marks Awarded for Analyses:—

Thomas Brown (1st Prize)	..	95	Campanulate	..	..	..	75
W. H. Waind (2nd Prize)	..	93	Danwer	..	..	..	73
Cortex	..	..	R. B. Carnegie	..	..	..	72
Harold Read	..	..	Phoenix	..	..	..	70
H. Bowden	..	..	P. Harris	..	..	..	65
Wilkie	..	..	W. Hood	..	..	..	60
A. Jones	..	..	Iodic Hydrarg.	..	..	..	50
Ajax	..	..	H. Lucas	..	..	..	48
Cono	..	..	C. A. W.	..	..	..	45
Oxymuriate	..	..	H. O. T.	..	..	..	42
Cogito	..	..	Alloxan	..	..	..	40
F. W. G.	..	..	Frango	..	..	..	35
Timothy	..	..	W. G. Burge	..	..	..	25
Meum Optimum	..	..	H. Sinker	..	..	..	20

#### TO CORRESPONDENTS.

**Prizes.**—The students to whom prizes are awarded are requested to write at once to the Publisher, naming the book they select, and stating how they wish it forwarded.

Any scientific book that is published at a price not greatly exceeding half a guinea may be taken as a first prize.

Any scientific book which is sold for about five shillings may be taken as second prize.

**Note.**—All communications should include the names and addresses of the writers.

H. READ.—You observe that the powder was colourless: it smelt faintly of acetic acid.

A. JONES.—It appears from your notes that you applied the ferric-chloride test for acetates to a hydrochloric-acid solution of the powder. The solution ought to have been neutral: an excess of hydrochloric acid decomposes ferric acetate.

AJAX.—You ought to have noticed the distinct effervescence which took place when the powder was treated with an acid.

CONO.—Considering that you had detected barium, the addition of a barium salt to a nitric-acid solution of the powder for the purpose of seeing if an insoluble barium compound would be produced, was not a very clever proceeding.

ONYMURIATE.—The production of a carbonate on ignition is not peculiar to oxalates; many other organic salts yield carbonates on ignition. Some acetates may be almost completely decomposed by ignition into acetone and a carbonate—barium acetate, for example,  $\text{Ba}(\text{C}_2\text{H}_3\text{O}_2)_2 = \text{BaCO}_3 + \text{C}_3\text{H}_4\text{O}$ .

COGITO.—The effects of heat upon the powder were not in the least suggestive of a tartrate.

TIMOTHY.—Your evidence of the presence of a citrate did not warrant the



conclusion you arrived at. The effects of heat upon the powder were sufficient to show that a citrate was not present in appreciable quantity.

**MEUM OPTIMUM.**—You omitted to give an account of the examination of the ammonium-carbonate precipitate: it contained barium.

**CAMPANULATE.**—You did not attempt the detection of the metals of the alkali-earth group not present as phosphates.

**DANWEN.**—The aqueous solution of the powder gave with ferric chloride a distinct reddish coloration. Without previous trial of the test, and experiments upon solutions of acetates of various strengths, you will find the test unsatisfactory.

**PHOENIX.**—The method you employed for the analysis of the precipitate containing the calcium phosphate is not a very good one. On boiling a solution of calcium phosphate in acetic acid you will find a precipitate is produced, although iron and alumina are entirely absent. The precipitate consists of a basic calcium phosphate. It is better to separate the phosphoric radicle in combination with iron: you will find the method described in any good text-book of qualitative analysis.

**P. HARRIS.**—Though the powder did not clear when heated, it darkened in colour. The white precipitate you obtained on adding ammonium hydrate to the acid solution of the powder consisted of phosphates, chiefly of calcium: it was quite unlike aluminium hydrate in appearance.

**W. HOOD.**—The filtrate which contained the magnesium was not examined by you for that metal. Try the effects of heat upon an acetate and upon a tartrate, and observe the difference. Employ small quantities, such as would be available in the examination of the packets of powder issued for these exercises.

**IODIC HYDRARG.**—Try the ignition of calcium phosphate with cobalt chloride, and observe how similar the colour produced is to that given by alumina under similar circumstances.

**H. LUCAS.**—It is probable that in your attempt to separate the phosphoric radicle from the barium and calcium you added too much sodium carbonate in neutralising the solution, and too little acetic acid afterwards, thus precipitating the phosphates of barium and calcium where iron or aluminium phosphate ought to have appeared.

**C. A. W.**—You were mistaken in supposing that the acid solution of the powder gave a precipitate with sodium hydrate soluble in excess. You cannot distinguish between alumina and calcium phosphate by ignition with a cobalt salt. See remarks to "Iodic Hydrarg."

**H. O. T.**—The acid solution of the powder as sent to you did not give a black precipitate with ammonium sulphide: you must have added iron in some way. The ferrous-sulphate test for nitric acid requires practice. You should ascertain by experiment what is the smallest quantity of a nitrate that you can detect by this test.

**ALLOXAN.**—The odour that you mistook for that of sulphur dioxide was due to acetic acid: the deposition of sulphur was purely imaginary.

**FRANGO.**—You ought to be able to distinguish with certainty between two such familiar odours as those of burning sulphur and vinegar: your sulphurous odour was really due to acetic acid.

**W. G. BURGE.**—You forgot that as the powder was soluble in dilute hydrochloric acid and contained barium, one of the salts present could not have been a sulphate.

out of the shop. Other evidence having been given, in which it was shown that the deceased had threatened his life on several occasions, Dr. Ryan said that death was clearly due to prussic-acid poisoning. The jury returned a verdict that the deceased committed suicide whilst of unsound mind.

#### The Medicated-wine Business.

Mr. J. Stiling, chemist, of Newton, has applied to the Borough Magistrates for a temporary wine-licence, pending the Brewster Sessions. As applicant did not produce any recommendation, the Bench refused to grant the application.

#### A Horse in a Chemist's Shop.

At the Brighton County Court, on August 11, Pelham Charles Young, of the Preston Pharmacy, sued a contractor named Port for damages caused by a runaway horse belonging to the defendant, which dashed into plaintiff's shop, breaking the window and doing other damage. The parties had mutually agreed that the damage, if any, should be five guineas, and the only point in dispute was as to whether there was negligence on the part of the defendant's servant. A witness said that when the horse started, the carter was sitting on the opposite side of the road eating his dinner.

Mr. Kerridge, on behalf of defendant, said he should show that the carter was in a position to control the horse. The horse, which had little or no go in it, was frightened by a man jumping over the park railings, and bolted, therefore that exonerated the defendant from responsibility. Ultimately judgment was entered for the plaintiff, by consent, for five guineas.

#### Sudden Death of a Chemist's Manager.

The Folkestone Coroner, on August 11, held an inquest on the body of Lucius Brunning, 43, who had been managing a branch shop at Dover Road for Mr. Knight, chemist, Folkestone. The deceased only came to the town eight days previously from Tooting to manage the shop. He was accompanied by his wife, who is paralysed. On Thursday evening, August 10, he was found behind the counter of the shop in a dying condition, and he almost immediately expired. Various rumours gained currency as to the cause of death, but a *post-mortem* examination showed that it was due to heart-disease. In answer to the Coroner, Dr. Dobbs, who made the examination, said there was no trace of poison in the stomach. The jury returned a verdict of death from natural causes. It transpired that the deceased's name was not on the register. Mr. Knight said he advertised for a qualified man, and engaged him as such.

#### Three Nice Boys.

At the Mansion House on Friday last, Henry George Elliott, aged 14, Alfred John Elliott, 11, and Gabriel Alfred Carson, 14, were charged on remand with stealing 17, the property of Mr. Rae, chemist, Fenchurch Street, E.C. The facts of the case were reported in our last issue. The Alderman ordered Alfred John Elliott to receive six strokes with the birch, and said he was sorry the other defendants were too old to receive similar punishment. However, he would remand them in order that their parents might be able to chastise them.

#### A Railway Company Prosecutes a Chemist.

At the Bury Police Court on Thursday last, James William Whitworth, chemist, Blackburn Street, Radcliffe, and another person were summoned for travelling on the Lancashire and Yorkshire Railway in second-class compartments with third-class tickets. The defendants pleaded guilty, and the Bench fined each of them 10s. and costs.

#### Carbolic-acid Poisoning.

Sarah Ellen Matthews, aged 36 years, wife of a cotton-porter at Liverpool, but living apart from him, had been drinking heavily for some weeks past until Monday. She varied her drink by taking carbolic acid, and was found lying unconscious on her bed with her clothes on. A policeman was called in, and he administered salt and water and olive oil. She vomited a little, sat up in bed and spoke, but she soon became unconscious again, and was removed to the Royal Infirmary, where she died soon after admission. At

## English News.

*The Editor is obliged to correspondents who send local newspapers containing items of interest to the trade. He will be further obliged if such paragraphs be marked in all cases.*

#### Suicide of a Chemist's Assistant.

On Thursday, Aug. 10, Dr. Danford Thomas held an inquest at the Holborn Town Hall, relative to the death of Walter Meggs, aged 20, a chemist's assistant, lately living at 182 Clerkenwell Road, who committed suicide by poisoning himself on the previous Sunday evening. Mr. Louis Knowles, a chemist, living at 14 Manchester Street, King's Cross, stated that he carried on business at 182 Clerkenwell Road, and that for just over three years the deceased had been in his employ. He enjoyed good health and spirits and did his work well until two months ago, when he observed him to be less tidy in his work than formerly, and, this continuing, witness last week spoke to him about it. Thereupon deceased gave him notice to leave. On Sunday evening witness went to the shop for the purpose of assisting his other assistant, because the deceased was supposed to have gone to his parents' house at Leytonstone, and finding a peculiar smell coming from the basement, he went downstairs into the kitchen, and there found the deceased lying on the floor quite dead. On the table was a bottle containing prussic acid, and a measure-glass that the deceased had taken



the inquest on Wednesday, Mr. Geo. Hughes, dispensing chemist in practice at Paddington, said the deceased came to his shop on Monday evening, when she seemed to be sober and quite rational. She asked for a pennyworth of carbolic acid, and he asked her if she was aware that it was a strong poison, and she said she was, and that she only required it for killing bugs. She brought her own bottle, and he gave her a pennyworth of common carbolic acid, and labelled the bottle with the name of the liquid, with the word "Poison," in black on a red label. There was nothing in the conduct of the woman when she left his shop to arouse suspicion. The jury returned a verdict of death by carbolic poisoning, but in what state of mind the deceased was at the time there was no evidence to show.

Edith Donnahey, aged 21 years, professionally known as Ada Vaughan, burlesque actress and dancer, whose father lived at Birmingham, killed herself with carbolic acid at Walworth on Friday of last week.

William Roberts, 25, a clerk at Chester, and William Edward Barnett, 22, a clerk at Seaforth, both committed suicide with carbolic acid last week.

#### A Chemist's Advertisement.

At the Beverley County Court, last week, George Smith, advertising agent, of Sheffield, sued Charles Morrow, chemist, of Hornsea, for 30s., cost of advertising for twelve months on a show-board. The solicitor for the plaintiff stated that a traveller for the plaintiff attended at Hornsea on August 4, 1892, for the purpose of soliciting orders, and amongst others received one from defendant, whom he told that the board would be placed on the wall of a house in the market-place. A deposit of 15s. was paid, and an order received for the advertisement to stand for two years. His Honour nonsuited the plaintiff, with costs, on the grounds that the order was not yet fulfilled, and therefore he was out of court.

### Irish News.

#### Personal.

Mr. J. S. Macartney, B.A., the Official Reporter of the Pharmaceutical Society of Ireland, has been elected Chairman of the Dublin District of the Institute of Journalists.

#### The Kay's Essence Question.

We hear that the Pharmaceutical Society are issuing new summonses against Mr. F. Leonard, grocer, Clanbrassil Street, Dublin, for selling Kay's essence of linseed. This is the gentleman who has already figured several times as the vendor of this medicine, with varying fortune. The issue of a properly-contested case is awaited with much interest.

#### The Ruppert Prosecution.

On Thursday, August 10, in the Dublin Police Courts before Mr. Swift, Magistrate, the adjourned prosecution, by the Pharmaceutical Society of Ireland, of Anna Ruppert, of 74 Grafton Street, Dublin, for having sold a bottle of Ruppert's skin-tonic, which the Society allege contains poison, she not being a person registered under the Pharmacy Act, and authorised to sell poisons, came on for hearing. Mr. Murchison, of Messrs. Casey & Clay, solicitors for the Society, stated to his Worship that as the solicitor for the defendant had produced a further certificate from Surgeon Smyly of the inability, through severe illness, of the defendant to appear, the prosecutors were willing that the case should be adjourned for another week. Mr. Swift agreed to this, and adjourned the hearing of the summons to August 17.

#### Fire.

On Saturday morning, August 12, a serious fire broke out on the premises of Messrs. J. & G. Boyd, drug and colour merchants, William Street, Limerick, resulting in the total loss of the stock and premises, and causing considerable damage to the adjoining houses. The damage done amounts to 30,000l., which is fully covered by insurance. This is the fourth fire which has occurred in Messrs. Boyd's establishment during recent years.

### Scotch News.

#### Personal.

Mr. William Allan, pharmaceutical chemist, of Dumfries, has compiled a handy guide to Dumfries, giving concise details respecting the points of interest in the town and neighbourhood, with several illustrations.

#### New Company.

The Aberdeen Fish Manure and Oil Company, 5 Market Street, Aberdeen, has been formed to carry on the business of manure, oil, and glue manufacturers. Capital, 12,000l., in shares of 1l. each.

### French Pharmaceutical News.

(From our Paris Correspondent.)

**A NURSE'S FATAL ERROR.**—A nurse at the Lariboisière Hospital has just caused the death of a patient by a mistake. A girl of 20 years, suffering from typhoid fever, was in the charge of a nurse, named Julie Mabant, and the instructions to the latter were to administer boric-acid solution to the invalid. On Wednesday last the nurse gave a preparation of carbolic acid by mistake, the result being fatal to the patient. The boric-acid solution and the carbolic acid were placed in bottles of different colours and each bore the name of the acid in large letters.

**THE PHARMACISTS' ASSISTANTS' ASSOCIATION** which has made itself so prominent recently by its successful action in the matter of early closing, has attracted a good deal of public attention thereby. As reported in *THE CHEMIST AND DRUGGIST* at the time, the Association was formed in the latter part of June, 1891, and on August 1 of the same year a committee was elected at a mass meeting of assistants held at the Salle Pétrelle. According to Article 4 of the Society's rules, its object, amongst other things, is to facilitate the studies of its members and to defend the general interest of the profession. According to Article 11 there are what may be termed six degrees of studentship eligible for admission as members. It is due to the Association to say that it is apparently under good and energetic management.

**THE CHEMIST'S CANDIDATURE.**—A parfumeur-chimiste, named Emile Charlet, established in business with his brother as Veuve Charlet & Fils, at 33 Rue Jacob, Paris, 25 years of age, was until the last few days a Republican candidate for parliamentary honours in the Sixth Arrondissement. Mme. Charlet had taken under her care the daughter of a deceased friend; the young lady having, at the age of 25, just been divorced from her husband, M. Jauffroit. The divorcee having a fortune of some 14,000f., Mme. Charlet formed matrimonial projects for her son. The latter managed to induce his mother's visitor to allow him to deposit her money in a Paris bank—it was safer than keeping it at home. He did so, but in his own name. After some time, Mme. Jauffroit found that the marriage between M. Charlet and herself was impracticable, and asked for a restitution of her money. Charlet is charged, however, with having used the money for his candidature. The candidature was kept up as long as possible until the police commissary of the district intervened. On Saturday last it was found that both mother and son had disappeared. By a judicious use of funds, Charlet had managed to get his candidature supported by several Paris newspapers, in which his virtues, capacity, and integrity were extolled in a very lavish manner.

**COFFEE**, according to Heerlein, is neither in itself nutritive, nor does it act as a "sparing" food. It, however, stimulates metabolism, probably by its action on the nervous system. The distillate of coffee smells like coffee, and its chief constituent is caffeole,  $C_8H_{16}O_2$ .



## Legal Reports.

### KUTNOW'S TRADE-MARK.—CARLSBAD SALTS.

IN the Chancery Division of the High Court of Justice, on August 11, Mr. Justice North gave judgment in this case, the particulars of which were reported in our issue of June 17.

His Lordship said that Mr. Kutnow, in October, 1890, applied to have a trade-mark registered for Carlsbad powders. At the top of the label were the words "Kutnow's Improved Effervescent Carlsbad Powder," and then within an outline there was a picture of the well-known rock at Carlsbad, with a chamois on the top, and below that was the phrase "Hirschensprung, or Deer-leap, Carlsbad," with the name "S. Kutnow" below it. The application was to register that trade-mark, the essential particulars claimed by the applicant being the device and the words "Hirschensprung, or Deer-leap," Carlsbad. On February 13, 1891, an opposition to the registration was commenced by the Corporation of Carlsbad, who were the proprietors of springs there, and their lessees. The Comptroller entertained the application on August 13, 1891, and that was followed by an appeal to him (Mr. Justice North) from the decision of the Comptroller to the Board of Trade on the part of the Carlsbad municipality. From that time to the present there had been a very long delay, which was unexplained. His opinion—founded on all the evidence before him—was that the registration should proceed. The opponents said that the trade-mark was calculated to deceive the public, and that, according to the case of *Eno v. Dunn*, an applicant who sought to have a trade-mark registered had the burden cast upon him of showing that the trade-mark he asked for was not calculated to deceive. "Calculated to deceive" might mean two things—intended to deceive, or likely to deceive. The opponents read the words "calculated to deceive" as meaning that it included the capability of its being used by the party registering for the purpose of deception. That was a new reading, and one that went beyond the law in *Eno v. Dunn*, or any other case he knew of. The application was first to register this trade-mark, with the phrase "Kutnow's Improved Effervescent Carlsbad Powder" upon it. That description of the article was true in all particulars. Carlsbad salts were now thoroughly well known in the form of what he might call the natural and the artificial salts. The term "Carlsbad" was not dissimilar to "Epsom" salts in the respect that it had become a term irrespective of the place where the article was made. The evidence showed that "Carlsbad salts," pure and simple, was a phrase well known to include the article sold by the opponents. Carlsbad salts had been used for a great many other things, both natural and artificial; but then it always had something which distinguished it from Carlsbad salts pure and simple. For instance, there were Wilcox's Carlsbad salts, Dinnetford's granulated effervescent Carlsbad salts, Martindale's, Thackeray's, Bishop's, and another of the Apothecaries' Company, of London. The opponents themselves had registered a great many trade-marks, amongst others being one for "Sprudel" salt, which was to be used for the natural or artificial article as they thought fit. The question was not whether the opponents' trade-marks were good or not, but whether what the applicants were proposing to do would have the effect of deceiving the public. As showing how familiar to the opponents was the existence of artificial Carlsbad salts, his Lordship said that in the case of Bishop the opponents threatened proceedings unless Bishop discontinued the use of the term "Bishop's Effervescent Carlsbad Salts." But that user was not discontinued, and no proceedings had been taken. It was said that the Duke of Wellington, Admiral Maxse, Sir Phillip Cunliffe Owen, the Hon. Mr. Hanbury Tracy, M.P., and others would be or had been deceived by the phrase "Carlsbad salts." That only showed they did not know everything. The practice in the trade had been universally to use this term, "Carlsbad salts," for what was not produced by the opponents and not even made from their springs. Another thing to be said was that Kutnow did not propose to use the phrase "Carlsbad salts" at all: the phrase he used was "Carlsbad powder." And there was a good deal of evidence pointing out the clearly-recognised distinction between Carlsbad "salts" and "powder." The opponents

said they sold powder too. In the first place, that was not correct. They never did sell Carlsbad powder, or anything like it, but they had sold Carlsbad salts to which the word pulverförmig had been added. Then it was to be borne in mind that it was not shown that they ever did that until 1891, when the applicant applied to register. It was said that the applicant must take great pains to avoid deception, bearing in mind the natural meaning attributed to "Carlsbad salts" standing alone. He acceded to the proposition that they ought to take pains that what they did should not have the effect of making their goods liable to be mistaken for the goods of other persons. But the get-up of Kutnow's product had been entirely different in every way to that of the opponents', and the pamphlets were totally distinct. There was no reason for suggesting that in any of these particulars there had been the slightest attempt on the part of Kutnow to imitate the opponents' goods. Under the circumstances, why should not the applicant have this mark, consisting of the rock with the deer on the top? His Lordship recited the legend associated with the "Deer-leap." The rock, he said, belonged to the Corporation, and was half a mile from the springs. "Hirschensprung" was a German name, and the applicant, in giving an English version, might have given it as "Deer-spring" instead of "Deer-leap." It was evident he had given an honest translation. Because the rock belonged to the municipality, was that a reason why the applicant should not have a trade-mark for it if he liked? Could not the Tower of London be used for a trade-mark except by the Government, to whom it belonged? Would it be impossible for an Edinburgh tradesman to use Edinburgh Castle as his trade-mark unless he were the owner of the castle? It seemed to him to be idle to say that a person could not take a particular object, whether natural or artificial, for his trade-mark unless he were the proprietor of the thing itself. Why should the applicant, who had the right to the use of the word "Carlsbad," not use Carlsbad in a picture as well as spell it out in eight letters? It seemed to him to be perfectly legitimate on the part of the applicant to take the rock if he pleased. His Lordship then said that the word "Carlsbad" in connection with powder meant powder of a particular character, having certain medicinal effects, not necessarily connected with the place, and referred to the ground of objection that the article was not manufactured at Carlsbad. The evidence for the applicant was that the powder was the identical powder received in London from Carlsbad, Bohemia, without any subtraction or alteration. There was no reason to doubt that. Another point was this. It was said that, at any rate, Kutnow could not sell any more manufactured in Carlsbad, and therefore the trade-mark would deceive the public. In his (the learned Judge's) opinion, that did not follow. It was quite true that Worlicek had—to use a familiar phrase—been "got at" by the Corporation, and that he had changed his views and given some evidence on oath inconsistent with his letters. It had been pointed out to Worlicek by the Burgomaster how disadvantageous it would be to him to continue to supply a powder made in Carlsbad, having regard to the claim the Corporation were now setting up; and he had been induced to make an affidavit and to say that he would not supply any more. As he said before, he (Mr. Justice North) believed what Worlicek wrote at the time, and did not think his evidence was satisfactory. As regarded this suggestion that it could not be got any longer, he did not know how that might be: perhaps it could, perhaps it could not. The conclusion he had come to on the evidence was that Kutnow's application was an honest one, and that he had no reason to believe he would use the trade-mark, if he got it, dishonestly or for an improper purpose. It might be that if he could not any longer get the article manufactured at Carlsbad, he would not be able to make much use of his trade-mark; but he (Mr. Justice North) was not going to draw the inference from that that if it turned out that by the machinations of his opponents he could not use it honestly, therefore he would use it dishonestly. He saw no reason why an honest application to register this trade-mark should be defeated by the opponents having succeeded (if they had succeeded) during the progress of a protracted opposition in intercepting temporarily or more the supply of the material from the source whence the applicant had conclusively proved to his satisfaction he had obtained it. In his opinion the application was not intended to deceive, nor did he think it was likely to deceive,



the public. Although it might be dishonestly used by Kutnow or other persons who might take it, he declined to draw the inference that it was intended to be dishonestly used; and therefore he affirmed the view the Registrar took, and the opposition failed. He dismissed the appeal, with costs.

Judgment on all points in favour of Mr. Kutnow.

The counsel engaged in the case were Mr. Aston, Q.C., and Mr. Sebastian for the appellants, the Municipality of Carlisle; and Mr. Cozens Hardy, Q.C., and Mr. Ashton Cross for Mr. Kutnow, in support of the decision of the Comptroller. Among the affidavits were one by Sir Henry Roscoe in favour of the appellants, and one by Professor Atfield on behalf of Mr. Kutnow.

#### MELLIN v. WHITE.—PROPRIETARY WRAPPERS.

In the Chancery Division of the High Court of Justice on Friday, August 11, before Mr. Justice North, this was a motion by the proprietor of the much-advertised Mellin's food for infants to restrain the defendant, a chemist in an extensive way of business at Portsmouth and the neighbourhood, from selling or offering for sale the plaintiff's infants' food otherwise than under the plaintiff's original labels and wrappers; and from selling or offering for sale the plaintiff's infants' food under the plaintiff's labels or wrappers with any unauthorised addition thereto or alterations or obliterations thereof; and from untruefully stating or representing to persons purchasing or about to purchase the plaintiff's infants' food, or to the public generally, that the plaintiff's infants' food is not nutritious or beneficial, or is less nutritious or healthful than Dr. Vance's prepared food.

Mr. Cozens Hardy, Q.C., M.P., and Mr. A. à-B. Terrel appeared for the plaintiff; Mr. Swinfen Eady, Q.C., and Mr. Macnaughten were counsel for the defendant.

Mr. Cozens Hardy, Q.C., in opening the case, said that Mr. Mellin had spent 80,000*l.* a year in advertising his food. The defendant bought the plaintiff's food as it was sent out, but on the paper wrappers in which Mr. Mellin's bottles were sent out he pasted a label having the following notice on it:—

Notice.—The public are recommended to try Dr. Vance's prepared food for infants and invalids, it being far more nutritious and healthful than any other preparation yet offered.

Sold in barrels, each containing 1 lb. weight, at 7*d.* each, or in 7-lb. packets, 3*s.* 9*d.* each.

So that the defendant was actually putting on the plaintiff's goods a notice recommending his own food, and saying that it was better than the plaintiff's. He (Mr. Cozens Hardy) submitted that that was altogether an improper act, and one which would lead people to think they were buying Dr. Vance's food because it was not likely that there would be a label of Vance's food put upon that which was not Vance's.

Mr. Justice North: What has White to do with Vance?

Mr. Cozens Hardy: He makes it; he is the proprietor of it. The defendant is therefore putting his own labels upon our goods, and I submit he has no right to do that.

Mr. Justice North: I do not know that. He is not deceiving in the usual sense in which that phrase is used, and he is not passing off your goods as his.

Mr. Cozens Hardy said that was the substance of the motion. He ventured to think that a person seeing a label with a puff of Vance's food on the plaintiff's bottles would naturally draw the inference that it was Vance's food. From further statements of the learned counsel it appeared that the wrapper had impressed on it Mellin's trade-mark and a label of Mellin's own. These were not interfered with, the labels complained of being placed over another part of the wrapper. The defendant had attached such notices to other articles sent out from all his shops connected with infants, and at two shops had sent out Mellin's food with the advertisement complained of on the label.

Mr. Justice North asked if an application were made for, say, Thorley's food for cattle, a chemist might not say to the customer, "Here it is; but I have a better article than that which I can sell you if you like"?

Mr. Cozens Hardy: Yes.

Mr. Justice North: Supposing, instead of saying that over the counter, he put his own label within the parcel saying so, what then?

Mr. Cozens Hardy said that raised the particular point which was for the decision of the Court. He submitted there was an essential difference.

Mr. Justice North said he must say that the defendant's way of doing business had the merit of novelty.

The affidavit of Gustav Mellin, of Marlborough Works, Peckham, was then read, to the effect that he was the proprietor of the infants' food known as Mellin's, which had been before the public for twenty-five years and upwards. It had been highly recommended by eminent physicians and analysts in England, America, and on the Continent. The food was sold by him in enormous quantities, and it was a well-understood condition in the trade that it should be sold by the retail vendors in identically the same form as to wrappers and labels as they received it in, and without any addition except that sometimes the retailer affixed his name and address thereon by a label, to show that the goods were sold by him. His labels were well known, and any person seeing his wrappers and labels would know that they enclosed his infants' food. Such implied condition was an essential term of the sale by him, as otherwise retail sellers might render his expenditure in advertising practically useless. The affidavit then detailed the manner in which what the defendant was doing had been brought to the deponent's knowledge, and concluded by saying that Dr. Vance's food was an inferior article, and that if persons were induced to think it was his, his trade would be injured.

The affidavit of John Piley, Fellow of the Chemical Society of London and of the Royal Microscopical Society, and Doctor of Philosophy and Laws, was read to the effect that Dr. Vance's food was of a farinaceous character, and not so beneficial as the plaintiff's.

The affidavit of Ebenezer Brashier went to prove the purchase from the defendant of bottles labelled in the way complained of. [These were produced to the Court.]

The affidavit of Robert Henry Harland, of the Laboratory, 37 Lombard Street, said that that gentleman was a Fellow of the Institute of Chemistry of Great Britain, a Fellow of the Chemical Society, and a Public Analyst. He had analysed the plaintiff's food.

The affidavit of Bernard Dyer, Great Tower Street, was to the same effect.

That of Henry Miller, manager to Messrs. Allen & Hanburys, wholesale and export druggists, 37 Lombard Street, was to the effect that it was a well-understood condition of the trade that the retail purchasers from wholesale dealers were to retail the articles sold in the identical wrappers, coverings, or labels in which they were issued or packed by the respective manufacturers, and that they should not do anything to obliterate or alter the wrappers, &c., or attach marks thereto other than their names and addresses.

This evidence as to the custom of the trade was corroborated by affidavits of Mr. F. H. E. R. Pugh, of 36 and 38 Commercial Street, trading as Alexander Riddle & Co., lime-juice cordial manufacturers, and Mr. Seymour Willoughby, dealer in patent medicines, of 21 Spital Square, Bishopsgate.

The defendant, said Mr. Hardy, had filed some evidence; but he submitted that there was nothing to qualify the evidence as to the custom of the trade.

Mr. Swinfen Eady read the affidavit of the defendant, Woolmer Rudolph Donati White, to the effect that his father had for fifty years carried on the business of a chemist and druggist at Portsmouth, of which he was the manager. His father was in a very extensive way of business in Portsmouth and the Isle of Wight. There were eight shops in Portsmouth and two in the Isle of Wight. About twenty years ago his father became the proprietor of the recipe for the manufacture of Dr. Vance's food for infants and invalids. Numerous testimonials had been received. About a year ago it occurred to him that it would be advantageous to further advertise Dr. Vance's food by labels attached to all articles sold in his father's business for the use of infants. He had labels prepared, and distributed them amongst the branch establishments of the business, with directions to the sub-managers to affix them to all articles used specially for infants. Speaking generally, he believed that all articles for the use of infants, except foods, had borne a copy of this label; but, in the case of foods, the labels had been used at two out of the ten establishments. Then followed a statement that Vance's food was farinaceous, and, conse-



quently, the best for infants. He had never heard of any condition in the trade that retail purchasers should not attach to articles they purchased any mark or advertisement other than their name and address, and he did not believe that any such custom existed in fact. It was the custom for wholesale vendors of proprietary articles to supply to the retail trade printed leaflets or sheets of paper to be used by the retailer for wrapping up indiscriminately any articles sold by him, and such leaflets or sheets of paper had invariably printed upon them advertisements of the wares of the persons by whom they are supplied. To such an extent does this custom prevail that in some cases chemists in a small way of business do not keep any plain paper for wrapping up articles sold by them, but depend entirely for wrappers on such leaflets. The retailer does not consider when wrapping up a parcel whether the leaflet or advertisement he is issuing does or does not relate to the article he is wrapping up. In conclusion, he said that he had no intention of misleading, and that it would be difficult to confuse Dr. Vanee's food with that of the plaintiff.

The affidavits of Mr. John Snook, trading as Wilcox & Co., at No. 239 Oxford Street, and as Gabriel Jozeau, of 49 Haymarket, said that he had never heard of the custom of the trade spoken to by the plaintiff's witnesses. He had never bought any goods subject to any such restriction, nor heard of any being so bought.

Mr. Swinfen Eady submitted there was no distinction between wrapping up in an advertisement and affixing one, and that the motion ought to be refused.

Mr. Justice North, in giving judgment, said that he could not say that what the defendant was doing was contrary to the custom of the trade; there was no evidence that he could go upon on that point. The time for deciding that had not arrived: it was a question for the trial. In this case he did think it was a very sharp piece of practice of the defendant to put on Mr. Mellin's wrappers a statement that his own food was better. He did not recollect having seen a similar step taken. But he did not quite see on what ground it could be said that a tradesman had not a right to send a puff of his own goods with similar goods of another manufacturer, either in a separate envelope or on a separate piece of paper in the same envelope, and, if he could do that, why could not he attach a label to the cover of the goods themselves? It was a matter with respect to which it was clear there must be a serious question to be tried at the trial, and he did not see his way, therefore, to interfere now. He should have been glad to hear the defendant offer to discontinue the practice on Mr. Mellin's food in the meantime, but he did not think it was a case in which he could compel him to do so. Costs of both parties would be costs of the action.

## Bankruptcies and Failures.

### Re THE LIQUIDATION OF STERILINE (LIMITED).

THE first meetings of the creditors and shareholders of the company were held on Thursday, August 10, at the Carey Street Offices of the Board of Trade, before Mr. G. Stapylton Barnes, Assistant-Receiver. Particulars of the formation of the company were given in our issue of August 5. The accounts show total liabilities 38,768*l.* 2*s.* 7*d.* (unsecured, 33,395*l.* 4*s.* 7*d.*), and assets 130*l.* 2*s.*, after allowing 1,583*l.* 10*s.* 5*d.* to meet the claims of the debenture-holders, and 280*l.* in respect of preferential claims. The account with the contributors shows a deficiency of 200,001*l.* 2*s.* 7*d.*

The Chairman announced that only three proofs had been lodged, and as there was not a quorum present he adjourned the meeting for a fortnight.

The shareholders' meeting was held later in the day, and again there being no quorum a formal adjournment was taken to August 24.

### Re WILLIAM FULLEYLOVE, Netherton, Chemist.

THIS debtor came up for examination at the Dudley County Court, before Mr. Registrar Kettle, on August 10.

In reply to the Official Receiver, the debtor stated that

he started business in Netherton about fifteen or sixteen years ago. Previously he was in the fancy gun-case trade, but left it on account of his health. He started at Netherton with money borrowed from a relative, and that money had not been paid back. He had made more than sufficient in his business to keep his household, but prolonged illness in his family handicapped him. In 1889 his takings were 10*l.* 10*s.* a week, and in 1893 7*l.* 7*s.* The profit upon the latter sum would be about 35*s.* or 40*s.*, and out of that he had to pay rent, rates, and taxes, keep the house, and clothe his family.

The Official Receiver: You have been living beyond your means.

Debtor: I must admit that I have for the last twelve months. It was in consequence of the illness of my wife.

Mr. W. E. Walker (a creditor) said he sympathised with the bankrupt, and was satisfied with the answers he had given.

The debtor, whose liabilities amounted to 260*l.* and assets to 40*l.*, was allowed to pass.

### Re JOHN EVANS, Mumbles, Chemist.

THIS debtor came up for adjourned examination at the Swansea Bankruptcy Court on August 3.

The Official Receiver first asked: Have you any explanation to offer of your conduct at the last Court?

The Debtor: Yes, sir. It was my own fault, in being intemperate.

Mr. Thomas: Don't you offer any apology? I think you ought to.

The Debtor: Yes, sir. I now beg to apologise to the learned Registrar and to you.

Proceeding with the examination, the debtor said that he had borrowed 150*l.* from Mr. Benjamin Evans in 1892, and other sums from his brother-in-law. Mr. Evans gave him a cheque, and he gave six bills of 25*l.* each. Prior to his getting into difficulties he had not been addicted to drink, but since then the worry had made him intemperate.

The examination was closed.

### Re SAMUEL EDWARD S. WIGAKER, Hightown Heights, Liversedge, Manufacturing Chemist.

THE Official Receiver has issued his report and observations under this failure, from which it appears that the receiving order was made on the debtor's own petition. He commenced business in partnership with G. Newsome, in February, 1888; but two years afterwards the firm made a private arrangement with their creditors, the affairs being wound up under a deed of assignment. He afterwards assisted Mr. Ellis, who purchased the estate from the trustee under the deed of assignment, and in eighteen months he became a partner, retiring in two or three years with a capital of 75*l.* He then commenced at the Tannerfield Chemical-works, Hightown, in partnership with one J. Barnell, the firm dissolving on July 21, 1893, when the debtor retired. The debtor attributes his position to his having left out certain debts when he effected his private arrangement in 1890, and to being sued afterwards, his indebtedness being thereby increased by law-costs. He has also lost money by the prosecution of a patent for extracting vegetable matter from wool, which, up to the present has proved unremunerative to himself.

### Re ALFRED COURT, 218 Kentish Town Road, Chemist.

THIS debtor petitioned the London Bankruptcy Court on August 15, and the usual receiving-order was made the same day against his estate by Mr. Registrar Brougham.

FOR BURNS a writer to the *Eclectic Medical Journal* recommends washing the parts with a solution of carbolic or salicylic acid, then elip the blister, let out the fluid, and cover the burned surface with subnitrate of bismuth, then with antiseptic cotton. The latter is removed and changed from time to time, the burned surface being dusted with the bismuth. The pain ceases in a very few minutes, and the healing process proceeds rapidly.



## Trade Notes.

THE Berkefeld Filter Company's address is 121 Oxford Street, W., not 171, as stated last week.

SPRATT'S PATENT (LIMITED) have published a little book on "The Dog from Puppyhood to Age," by Dr. Gordon Stables.

MESSRS. F. DARTON & Co., of 142 St. John Street, have just issued a new price-list of barometers (aneroids and other kinds), thermometers (clinicals and others), and many meteorological instruments, all of which are exceptionally well illustrated.

CHLORALOSE, a new hypnotic first prepared by Messrs. Henriot and Richef of Paris, from chloral and glucose, is now supplied in this country by Messrs. Arthur & Co., of Newman Street, who are agents for the manufacturers, Messrs. Bain & Fournier, of Paris.

THE two claimants to the right of making and selling Burgess's "Lion" pills and ointment have come to terms. Mr. H. J. Deacon, of Beckenham, has sold his claim to E. Burgess, jun., and in future the only "Lion" ointment and pills in the market will be supplied by the latter at 59 Gray's Inn Road.

IN the second illustration to the article on "Camphor-refining in Japan," published in our Summer Issue, Messrs. Hayward Tyler & Co., of Upper Whitecross Street, London, recognise a powerful hydraulic-press, made at their works, and supplied to the Japanese refiners. They would like our article to be supplemented by this piece of information.

FALLOWFIELD'S "Photographic Annual" for 1893-94 has just been published for the thirty-seventh time, and has now reached the substantial size of over 700 pages. As a complete illustrated price-list of all kinds of photographic goods, it probably outstrips all rival publications. It can be obtained from Mr. Jonathan Fallowfield, 146 Charing Cross Road, W., for 1s., post free.

THE report of the Hardy Patent Pick Company for the year ended June 30 shows that the net profit for the year has been 5,582*l*. This, with the amount brought forward from the last account, leaves 9,155*l*. to be dealt with. The directors recommend such a dividend as will, with the interim dividend already paid, make 5 per cent for the year. They set aside 2,000*l*. for depreciation, and carry forward 2,727*l*.

## Gazette.

### PARTNERSHIPS DISSOLVED.

Couper, W. G., and Millar, C. C. H., Fenchurch Avenue and Billiter Square, E.C., Millwall, E., and Montreal, Canada, under the style of Couper, Millar & Co., commission-agents and merchants and chemical-manufacturers.

Swann, A. P., and Meir, E. (formerly E. Mellor), under the style of William Mellor, Burslem, colour manufacturers.

### THE BANKRUPTCY ACTS, 1883 AND 1890.

#### ADJUDICATIONS.

Ashford, Albert William Wright, Abingdon, late Harrogate, artificial-teeth manufacturer.

Ashmore, Joseph, Thorngate, Barnard Castle, Durham, mineral water manufacturer.

Steel, Arthur Robert (described in the proceedings herein as A. R. Steel), Dawes Road, Fulham, S.W., doctor of medicine.

#### ORDER MADE ON APPLICATION FOR DISCHARGE.

Smith, Vincent (trading as J. W. Elliott, jun.), St. John's Road, Hoxton, N., and Filey Crescent, Stamford Hill, N., box-manufacturer—discharge suspended for three weeks, ended August 8, 1893.

HE HAD PASSED POETRY.—"Somebody's waiting when the dewdrops fall," she sang. "The, somebody's going to catch a bad cold!" said the doctor.

### TRADE-MARKS APPLIED FOR.

ANY person who has good grounds of objection to the registration of any of the following marks should at once communicate with Sir Reader Laek, Comptroller-General, at the Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.

(From the "Trade Marks Journal," July 26, 1893.)

"SAFE, SURE, AND SPEEDY," and device of three birds wings joined to circle, and other wording; for medicinal preparations. By Jos. Rhodes, 3 Cheapside, Easthorpe, Mirfield. The essential particular is the device. 173,244.

"SIMON PURE," and portrait of man in Puritan dress; for chemical substances used in medicine and pharmacy. By Mary R. Jackson, trading as the Raines Company, 64 Hanley Road, Hornsey Rise, London. The essential particular is the device. 173,350.

"VANOLINE"; for lotions and ointments. By L. T. Ashwell. Natal House, Hadlow, Kent. 173,429.

Device of female figure and flowers, with wording; for essences and perfumery. By G. Oppenheimer, trading as Zeno & Co., 1 and 3 Sun Street, London, E.C. The essential particular is the device. 172,275.

"KELBURNE BOUQUET," device of Fairlie Castle, and wording; for a perfume. By W. R. Craig, Kingston Pharmacy, 114 Clarence Street, Glasgow. The essential particular is the device. 173,049.

(From the "Trade Marks Journal," August 2, 1893.)

"KIROS"; for an application for burns, scalds, wounds, &c. By Wm. Dancer, 466 Chester Road, Manchester. 173,486.

(From the "Trade Marks Journal," August 9, 1893.)

Combination of geometrical and sun devices; for a fertiliser and insecticide, and a disinfectant and deodoriser. By S. Elliott, Albert Works, Newbury, Berks. The essential particular is the combination of devices. 172,663, 172,664.

"THE VICTOR," and device of rose, thistle, and shamrock in circular design; for disinfecting fluid and powder. By W. Nicholl and C. Haworth, trading as The Victor Chemical Company, 9 Corporation Street, Manchester. The essential particular is the combination of devices. 173,371.

Device of "TREFOIL," and word, circular device, and other wording; for camphor used in pharmacy. By J. Morrison & Co., 4 Fenchurch Street, London. The essential particulars are the device and the word "Trefoil." 170,965.

"COUGH-TEA," and signature; for a medicinal herbal preparation. The essential particular is the signature. By W. H. Power, 2 Pancras Lane, London. 173,616.

"KÉLÈNE"; for chloride of ethyl, for producing local anæsthesia. By G. P. Monnet & Cartier, 8 Quai de Retz, Lyons. 173,627.

"CULVERINE," "GLATRUCINE," "SCULCOPINE"; for chemical substances used in medicine and pharmacy. By Oppenheimer, Son & Co. (Limited), 14 Worship Street, London, E.C. 173,792, 173,793, 173,794.

"CYCLISTS' TONIC," other wording, and design of cyclist on bicycle, on label; for mineral and aerated waters. By R. Emerson, jun., George Street, Newcastle-on-Tyne. The essential particular is the device. 173,262.

"GLYCERINE AND CUCUMBER," other wording, and floral label; for perfumed soap. By R. B. Breidenbach, 48 Greek Street, Soho Square, London. The essential particular is the device. 173,395.

"LOSARIA"; for perfumery and toilet-articles. By Blondeau et Cie., Ryland Road, London, N.W. 173,436.

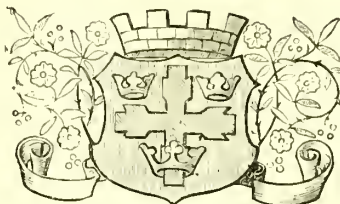
"EVADOSIA"; for perfumery and toilet-articles. By W. J. J. Hawkins, 128 Euston Road, Middlesex. 173,569.

"FRAL-INA"; for face-powder, toilet-soaps, and perfumery. By Charlotte E. Bleakley, Glen Eldon Road, St. Anne-on-the-Sea, Lancs. 173,625.



# British Pharmaceutical Conference.

Thirtieth Annual  
Meeting,

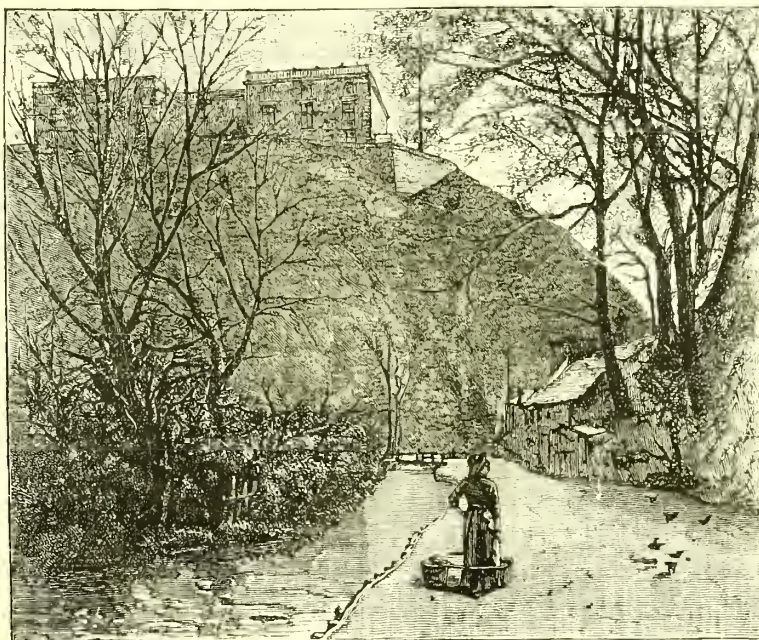


"VIVIT POST FUNERA VIRTUS."

Nottingham,  
August 14 to 16.

THERE has always been a Nottingham in England's history, for the town can be traced back as a town with certainty to the time when written chronicles blend with the legendary. And if we were to pin our faith to the latter, we should go far back beyond the Christian era, to the days when David, the son of Jesse, was soothing the mad mind of Saul with sweet music; then, say the earliest legends, Nottingham existed. We are content with something more modern—the history of Nottingham Castle itself, a relic of the Celts, a stronghold taken by King Alfred from the Danes, and held by successive English kings, until William of Normandy seized it, and, reconstructing it, made it much what its boundary walls show it to be—a large and imposing keep. From those times until 1831, when it was burnt to a shell during the Reform Riot, the Castle was a centre of bellicactivity, and if the walls could speak they would tell many a strange story about events which, in the course of centuries, welded England and Scotland into one nation.

It is to Nottingham's honour that this ancient landmark has in these peaceful times been dedicated to all that is emblematic of peace. The corporation took a lease of the ruins as the Reform Riot left them, restored the building to something like its pristine splendour, and in 1878 it was opened as an art museum, devoted to the exhibition of local industries, as well as antiquities and paintings. The art-galleries comprise over a dozen rooms, and the whole suite of apartments is admirably adapted for social functions. Many a brilliant gathering has been there, and not the least interesting was



NOTTINGHAM CASTLE.

these initiatory evenings at Bath, a few years ago, have the conditions for enjoyment been in every respect so favourable as they were on Monday night. The Castle is a splendid place for such a gathering: the rooms of the museum are large, and are full of interesting objects, and really an excellent collection of pictures is displayed in the several rooms constituting the art-galleries. It was in the principal gallery that Mr. Octavius Corder, the President of the year, with Mrs. Corder

and the Deputy-Mayor (Mr. Fitzhugh) and Mrs. Fitzhugh, received the guests of the evening. There was a string and reed band at the far end of the room, playing exquisitely, and the hum of conversation was just enough to deaden the sharpness of the strings. As it approached 9 o'clock, the scene was as gay as possible, and the rooms were beginning to be just a little bit warm. Then it was that the novelty of the reception came to the surface. People began to learn that they could go upon the Castle roof, and from there the lights of Nottingham were seen far below—not like a star

with the rays springing from this ancient keep as a centre, but in all the irregularity consistent with the town. The terrace, too, afforded splendid promenade, and as promenaders had to pass an ample buffet before getting there, to hear the Police band which was playing on the Castle green, by 9 o'clock the galleries were almost deserted, and young men and maidens, and those who were still young in spirit, were eating ices or sipping claret-cup under Norman arches. By-and-by, the terrace was dotted all over with glowing cigars; the crowd seemed to increase, although it was far past the carriage-hour, and it was just a question with many how long they might be allowed to stay, when "God Save the Queen," sent them all to the cloak-room. So the thirtieth annual meeting of the Conference began well, thanks to the management of the local Committee

## THE CONVERSAZIONE

held on Monday evening to welcome the members of the Pharmaceutical Conference. Never since Mr. Bengier inaugurated



## THE MEETING PLACE.

The meetings of the Conference were held in the Exchange Hall, situated in Market-place. This is the building seen at the back of the engraving on the opposite page. The Exchange Hall is used by the Municipal Council for their meetings, for although the town has a fine new Guild-hall there are historic associations attached to the Exchange which suffice to keep up old custom. The Market-place is the finest old market retained by any of the important towns in this country. It covers  $4\frac{1}{2}$  acres, and is used every day, except Sunday, for the sale of all kinds of garden and farm produce, as a meat and fish market, &c. The aspect of the large area on a week-day is brisk and businesslike, and

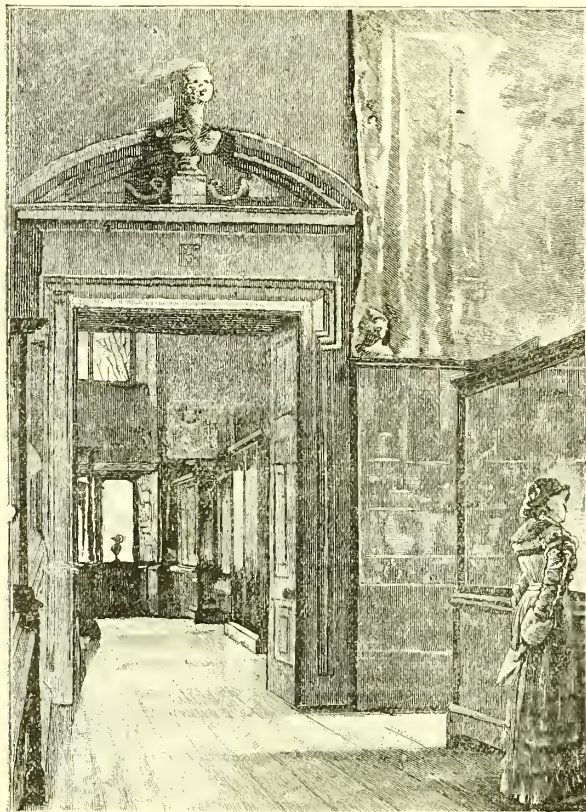
shoe fashion round the platform from which the Mayor rules his civic brethren. On the wall behind the mayoral chair was placed a trophy of flags surrounding the town's arms. This was the only attempt at decoration in the room.

It was ten minutes past 10 on Tuesday morning before there was any appearance of the Executive, and then they came in Indian file escorting the Mayor (Alderman Anderson Brownsword), who took his own chair, with Mr. Corder (the President of the Conference), Alderman Fitzhugh, and Mr. Baden Bengier on his left. There were also on the platform Messrs. W. A. H. Naylor, J. Laidlaw Ewing, Francis Ransom, and J. C. C. Payne.

The MAYOR set to business at once, and gave

## A WELCOME TO THE MEMBERS

in the name of his townsmen to about 250 members present. The Mayor, who was warmly applauded, said he was very glad that he was able to say "Ladies and Gentlemen" at the commencement of his speech, because it was not always that at a conference of that nature they were treated with the presence of the fair sex amongst them. He was sure it would add increased zest to the labours of the gentlemen there, and he thought it would also materially add to their enjoyment also. His duties were very brief that morning. He was there merely for the purpose of bidding that Conference a hearty welcome to the town of Nottingham. It was now twenty-seven years, he believed, since they were there before, and it happened singularly enough that the British Association met there in the same year, and was also meeting again there this year. Whether that was adventitious or design he did not know, but at all events they were very glad to see both. The Society of which they were representatives was to his mind one of the most important associations that they had. They scarcely any of them knew how much they depended upon the ability and skill of the members of their Association. Every day of their lives some of them had to go to chemists for treatment or for medicine to be made up, and it was of vital importance that none should occupy the position of chemists and dispensers amongst them who were not thoroughly qualified for the post. He was informed that their Society took care, as far as humanly possible, that that was the case, and he thought that the small number of accidents and mistakes they heard of proved very clearly that their Society's exertions were crowned with the greatest success. He was very glad, indeed, to find that they had had such a hearty and warm welcome there. The clerk of the weather had given them a most warm welcome, and he trusted they would find the hearts of the people of Nottingham had not only responded to his invitation, as it were, but had outdone it and given them quite as cordial a welcome as the clerk of the weather himself. (Applause.) He was sure that nothing would be left undone by the local committee to make the visit a successful one. He was glad to learn that the conversation held on the previous night at the Castle was so great a success, although he regretted he was unable to be present, having returned only late on the previous evening from a short holiday at the seaside. But if not with the members of that society personally, his sympathies were with them, and he was pleased to know that his friend, Mr. Fitzhugh, had acted in his place, and had made every possible preparation for the comfort of the visitors. Twenty-seven years ago, when the Society last visited Nottingham, the offices of local vice-president and secretary were filled by personal friends of his: but both had now passed away to the great majority. However, he was glad to find that one of the positions was filled this year by Mr. Fitzhugh, and the other by a gentleman whose work as secretary would, he was sure, be appreciated by all. He was glad to find from the programme drawn up that the bodily comfort and welfare of those attending the Conference had been so well provided for. That was, in his opinion, an important point when many of the members were, like himself, approaching middle life. (Laughter.) He trusted that the programme as arranged would be carried through, so that the members would be able to look back upon that visit to Nottingham as one of the most agreeable in the history of the Society. At all events, he was sure that the people of Nottingham were doing their best to make the visitors happy and comfortable. (Hear, hear.) He would not detain them any longer, but officially, as Chief Magistrate of the town, bid them all a hearty



A GLANCE IN THE CASTLE MUSEUM.

the market is unquestionably of immense benefit to all classes in Nottingham.

It is twenty-seven years since the Conference visited Nottingham, and in the interval the town has undergone important changes, many of the lanes and ancient houses having disappeared, and fine new streets having taken their place. The town is one of the most progressive in England, and has been foremost in those movements which have the education and betterment of the working classes for their aim. It is well supplied with schools, and in the University College we have one of the most complete establishments for secondary and technical education in the Kingdom. This college was opened in 1881, and during the twelve years since elapsed the education of students of pharmacy has been assiduously cultivated by the Science Staff—this being the only University College in the Kingdom where pharmacy has been continuously and successfully catered for.

## FIRST DAY.

The Exchange Hall, in which the Conference sessions were held, is a well-proportioned hall, capable of seating about 300. Comfortable chairs were arranged here in horse-



welcome, and trusted that the meetings of the Conference would be attended with great success. (Hear, hear.)

10.20. The PRESIDENT thanked the Mayor in a few words for the most hearty welcome they had received at his hands. He also expressed thanks to the local committee

Johnston, Leigh, Newsholme, Richardson, Schacht, Southall, and Storrar, and Mr. Richard Bremridge (Secretary).

North British Branch.—Messrs. J. Iaidlaw Ewing (Chairman), Peter Boa, W. L. Curric, D. B. Dott, J. Jack, J. John-



THE PARK,

One of the finest residential quarters of Nottingham, showing the Castle in the background.



MARKET PLACE, NOTTINGHAM.

for the programme they had provided for the entertainment of the Conference.

#### DELEGATES.

Mr. RANSOM (Hon. Sec.) read the following list of delegates:—

Pharmaceutical Society of Great Britain.—Mr. W. G. Cross (Vice-President), Messrs. Abraham, Allen, Atkins, Grose,

ston, C. Kerr, A. Kinninmont, R. McAdam, J. Paterson, D. Storrar, and J. Rutherford Hill (Assistant Secretary).

Pharmaceutical Society of Ireland.—Messrs. G. D. Beggs (Vice-President), H. Conyngham, J. C. C. Payne, and W. F. Wells, jun.

Aberdeen and North of Scotland Society of Chemists and Druggists.—Messrs. Johnston, Kay, and Paterson.



Brighton Association of Pharmacy.—Messrs. Marshall Leigh, W. W. Savage, and S. B. Harcastle.

Edinburgh Chemists', Assistants', and Apprentices' Association.—Mr. W. Duncan.

Glasgow Pharmaceutical Association.—Messrs. W. L. Currie (President) and R. C. Rait.

Hull Chemists' Association.—Messrs. C. B. Bell and J. S. Linford.

Leicester Chemists' Assistants' and Apprentices' Association.—Messrs. E. H. Butler and S. F. Burford.

Liverpool Chemists' Association.—Messrs. J. Bain, M. Conroy, J. R. Day, J. Hocken, J. Smith, C. Symes, W. Wellings, and A. S. Buck.

London Chemists' Assistants' Association.—Messrs. E. F. Harrison, H. A. D. Jowett, F. A. Rogers, J. C. Stead, and J. Strother.

Manchester Pharmaceutical Association.—Messrs. Benger and Kemp.

Midland Pharmaceutical Association.—Messrs. C. Thompson (President), R. D. Gibbs, G. E. Perry, F. H. Prosser, H. Hutton, and M. Magor.

North of England Pharmaceutical Association.—Messrs. T. Maltby Clague and J. Harrison.

#### APOLOGIES

were intimated from Messrs. N. H. Martin, A. Strachan, W. Martindale, J. C. Umney, W. Hayes, Richard Reynolds, J. Tresh, M. B. D. Sc., D. B. Dott, E. C. C. Stanford, Peter Boa, E. M. Holmes, T. Maben, G. F. Schacht, and others. Mr. Richard Reynolds wrote that only the doctor and a bronchial attack prevented him going to Nottingham to take part in the Conference. Mr. Corder was his oldest friend: they had learned Caesar together at the same desk in the forties, and they had been intimately acquainted ever since. He considered that Mr. Corder was a pharmacist who was not surpassed in botanical knowledge, and he anticipated a rare treat for the members when Mr. Corder drew from his rich stores of knowledge.

Mr. NAYLOR (Hon. Sec.) read the following

#### REPORT OF THE EXECUTIVE COMMITTEE.

The Executive Committee, in presenting the thirtieth annual report to the members of the British Pharmaceutical Conference, congratulates them on the continued success of the Association. There is no indication of any decline in the interest taken in the work of the Conference. In looking back over the thirty years of its existence, your committee feels that there is abundant evidence that the objects for which it was founded have been promoted, and that there is sufficient reason to warrant the belief that an equally useful and important future lies before it. At the meeting held last year in Edinburgh a resolution was passed declaring that the Conference in future should not of necessity meet in the same town or at the same time as the British Association. The effect of this resolution is to emphasise the fact that the Conference is at liberty to meet at whatever time and place may seem most desirable.

During the past year the Conference has lost by death a distinguished honorary member, Dr. Soubeiran, Professor of Pharmacy at Montpellier, France. Your committee has also to record with deep regret the death of Mr. Samuel Gale, which occurred in March of the present year. Mr. Gale was an acknowledged authority on pharmaceutical matters, and his long experience on the Board of Examiners of the Pharmaceutical Society of Great Britain brought him into contact with a large body of pharmacists, by whom he was universally esteemed.

The Blue List has been subjected to some slight revision, and contains suggestions for research work on subjects which, it is believed, would amply repay investigation. A grant of 5*l.* in aid of research has been made to Mr. W. Elborne, B.A., F.L.S., to defray expenses connected with an investigation of *coto-bark*, a first report on which will be read at the present meeting.

Mr. R. A. Cripps, F.I.C., who was the recipient last year of a further grant of 5*l.* to assist in carrying out his investigation on *ipecauanha*, reports that his work is progressing,

but is not sufficiently advanced for publication, and therefore asks for an extension of time.

The end of June marked the resignation of Mr. M. K. Johnson as Assistant Secretary, a step necessitated by his entrance into business on his own account at a considerable distance from London. His past service was appropriately acknowledged at the last meeting of the Executive by the passing of a formal resolution in terms that recognised his fidelity and devotion to the interests of the Conference, and expressed the thanks of the committee. It is a pleasure to be able to state that Mr. J. C. Nightingale, who formerly occupied the position for several years, has been appointed to fill the vacancy.

Mr. Louis Siebold, F.I.C., F.C.S., was re-appointed editor of the *Year-book*, and the MS. of Parts I.—IV. inclusive is now in the hands of the printers. Arrangements have been made by which the earlier publication of the volume is assured.

The papers to be read at the meeting are fewer than they have been for some years past, but it is confidently believed that the quality is such that they will provide suitable matter for profitable discussion.

The reception by the President was held in the Castle Museum and Art Gallery last night, and this, with the *conversazione* which followed, proved, as usual, an attractive commencement to the business of the Conference.

Your committee announces with sincere regret that owing to ill-health, Mr. R. H. Davies, F.I.C., F.C.S., has felt compelled to resign the office of Treasurer. In accepting his resignation the committee placed on record its high appreciation of the important service he has rendered the Conference. The Senior Secretary was instructed to convey the resolution, and at the same time to express the hope that Mr. Davies might soon be restored to his accustomed health.

#### THE FINANCIAL STATEMENT

was both good and bad. It showed a better return from members' subscriptions, but more expense in producing the *Year-book*. In other words, commencing the year with a practical balance of 156*l.*, it finished with one of 121*l.* The sources of income were:—Sale of *Year-book*, 17*l.* 13*s.* 4*d.*; advertisements, 90*l.* 8*s.* 4*d.*; members' subscriptions, 462*l.* 2*s.* 4*d.*; sale of Index-book, 9*s.* 10*d.*; outstanding liabilities, 7*l.* 14*s.* 6*d.* The expenditure included—*Year-book*, total expense of producing, 510*l.* 6*s.* 3*d.*; Unofficial Formulary, 2*l.* 3*s.* 6*d.*; Assistant-Secretary's salary from July 1, 1892, to June 30, 1893, and rent of office, 52*l.* 10*s.*; Blue List (printing, 3*l.* 4*s.* 6*d.*; postages, 2*l.* 15*s.* 9*d.*), 6*l.* 0*s.* 3*d.*; postages, 12*l.* 9*s.* 2*d.*; printing and stationery, 9*l.* 15*s.* 6*d.*; sundry expenses, 19*l.* 14*s.* 4*d.*

Mr. WILFORD, one of the auditors, said that the accounts of the Conference were well kept and the statement was correct. On the motion of the PRESIDENT (who now occupied the chair), seconded by Mr. CHARLES THOMPSON, of Birmingham, the report and financial statement were

#### CONGRATULATIONS TO THE A.P.A.

The PRESIDENT then remarked that the American Pharmaceutical Association was that day meeting in Chicago, and it was proposed to send a cablegram wishing the members hearty congratulations and success.

#### COLONIALS PRESENT.

10.30. Again rising, the PRESIDENT said he understood that two pharmacists from the Colonies were present—Mr. Alfred Reeve, of Melbourne, and Mr. Mager, a member of the Board of Pharmacy of the Cape of Good Hope. He wished to give them, in the name of the Conference, a hearty welcome, and if they came forward they would find a seat on the platform.

These gentlemen responded to the invitation, and took chairs on the President's left.

Mr. MAGER (being called upon by the President) said it was a very great pleasure to him to be at the Conference. He came from a distant land, where legislation had been necessary in regard to pharmacy. He represented the Pharmacy Board of the Cape of Good Hope. That Board had been established for two years, and was composed of men selected from certificated chemists. He was sure he should take very great interest in the discussions that were coming on, and they would no doubt be very useful to him in the future.



## THE PRESIDENT'S ADDRESS.

My friends (said Mr. Corder, the way now being clear for him), I thank you for the courtesy which has prompted you to elect me as your President this year, the more so as I am fully aware that there are many men better qualified to fill the office, and many who could have given you an address more worthy of your acceptance. I find, as others must have done, that every year increases the difficulty of choosing a subject suitable for the occasion, as each former President has well-nigh exhausted every topic bearing upon pharmaceutical interests. Knowing that much time will be taken up in listening to the many and varied papers which have, I presume, been prepared for this Conference, and the discussions which will necessarily follow, let me remind you of the old adage that "speech is silver, and silence is gold." This week, in the first place, I must inform you, is

## MY JUBILEE.

Fifty years ago I entered upon a term of six and a half years' apprenticeship to obtain a knowledge of pharmacy. Fifty years, roughly speaking, mean in human life nearly a generation and a half, and in that period of time so many changes have taken place that the London Pharmacopœia of 1836, which was then in vogue, is a text-book of a very different character to the Pharmacopœia now in use, which is our standard of British pharmacy.

In those old-fashioned days of fifty years ago, a lad of fourteen would be apprenticed; by the way, much too early an age to study the mystic sign on a specie-jar of the Apothecaries' Company, with its one-horned rhinoceros. What that beast has to do with physic I cannot to this day determine, but the world-wide motto "Opiferque per orbem dicor" must be patent to all. Whilst on the subject of

## APPRENTICESHIP.

I would remark that the old term of six or seven years was too long a period to follow the short school-life of a boy of fourteen, or fourteen and a half. At the same time, I am by no means sure that the present recognised time of three years does not err on the other hand, as too short an apprenticeship to master the requirements of modern pharmacy. For instance, a youth leaves school at the present time at sixteen, and by tacit agreement his indentures are cancelled at the age of nineteen; at this age he is too young to obtain a situation in a first-class establishment, consequently he must be content to enter, as a junior, a second or third rate one, where, let it be remembered, there is no sort of obligation to instruct, nor is there time for him to do more than to attend to the duties of his situation. How, then, can the majority of such young men, under these circumstances, hope to obtain the knowledge required for the advanced examinations of this present time? Their future success, as we know, must depend entirely upon themselves. With an improved education much can be done; without it they must fall behind in the race. Raising the standard must of necessity improve the position, but without a thorough knowledge they can never expect, so to speak, to be more than "hewers of wood and drawers of water." For this reason the Board of Examiners have gradually increased the stringency of the examinations so as to meet more fully the exigency of the case. I am aware that in all examinations good men may and do sometimes fail, and indifferent ones occasionally pass, but, taken as a whole, I believe no work is more con-

scientiously carried out than that of the Board of which I have been so long a member. It is a mistaken kindness to pass an unprepared student. Their duty to the candidate, to the Pharmaceutical Society, and, above all, to the interest of the public, demand that he should possess a thorough knowledge of pharmacy in all its branches. A deficient early education, a naturally unfitted aspirant for this work, a widespread system of cram, have very frequently to be encountered by the Board, so that it is not to be wondered at that 60 or 70 per cent. fail; and even then it is not certain that the result has been "a survival of the fittest." Young men are apprenticed to the business of a chemist because it is thought to be genteel (what a hateful word that is), or that the work is easy and the capital required comparatively small, without duly considering his adaptability for the work.

## GERARD'S "HERBAL."

The subject I have taken for my address is on some herbaceous plants in common cultivation, especially those connected with medicine. I shall offer no apology for choosing this subject, because, in the first place, I know you will allow me perfect freedom in the matter; and, secondly, it does not appear to have been chosen by any former President of the Conference. For this purpose I must take you back to the year 1596, when John Gerard wrote his wonderful "Herbal." I feel, in justice to him, that we must give him the first place in the rank of those who cultivated herbaceous plants, for we must remember that before his time little had been done in that direction. We cannot but feel the greatest admiration for one who succeeded in growing more than a thousand species of these plants in his own garden, somewhere near where Somerset House stands. We look in vain for the site of this interesting old garden, but we can easily imagine the intense interest he displayed in the growth of his treasures—the result of his long-trying

labours. In those days there were no selected catalogues of hardy or other plants, so that Gerard had to thank himself for the collection of plants which, only by immense pains, he was able to get together. Yet is it not to be wondered at that so little notice was taken of him at the time, and that were it not for his "Herbal" he would probably have passed altogether out of sight, when we remember the host of English worthies who flourished in these halcyon days—such men as Shakespeare, Spenser, Bacon, Cecil Burleigh, Essex, and Raleigh. So we can understand that a mere cultivator of plants would be overlooked in the presence of such great minds.

The bibliophile, however much he may prize "the small rare volume, black with tarnished gold," will scarcely consider his library complete unless it contains a herbal, and from a long list of such books he would probably choose that of Gerard as the best to adorn his shelves, provided always that he could secure

## THE RIGHT EDITION.

This very handsome folio is a fine example of this class of literature, containing, as it does, over 1,600 pages of closely-printed and almost perfect letterpress, with more than 2,000 woodcuts, which, in spite of the early date at which they



OCTAVIUS CORDER.



were produced, could hardly be improved on at the present time with modern appliances. The edition which, in a collector's opinion, would be considered the "right" one is dated anno 1633, and is described as follows:—"The Herball or Generale Historie of Plantes. Gathered by John Gerarde of London, Master in Chirurgerie. Very much enlarged and amended by Thomas Johnson, Citizen and Apothecarye of London. London, printed by Adam Islip, Joice Norton, and Richard Whitaker. Anno 1633." As frontispiece it contains a very fine example of the florid style so characteristic of folios of that period, and is the work of John Payne. At the top are figures of Ceres on the one hand, and Pomona on the other; below these, on either side of the title, are figures of Theophrastus and Dioscorides, facing one another. At the bottom is a portrait of the author, holding in his hand the recently-introduced potato-plant. Although practically unshaded, the drawings are perfect in outline, and the characteristics of each plant are shown with a fidelity and simplicity which enables them to be easily identified—simplicity is a great feature throughout the book. The plan which the author follows to describe each class of plants, or even individuals, is very definite, first giving an account of the plant under some characteristic heading, which, though it may differ very materially from modern classification, was better adapted to the scanty knowledge of the seventeenth century. Then he gives the habitat and various local and foreign names, finishing with the time of flowering and the various medicinal qualities—of these last he found some for every plant. Many old-fashioned names frequently crop up in his descriptions, which may still be occasionally met with in some out-of-the-way corner of England or Wales. For example, "dwale" for deadly nightshade is still used in Devonshire, and Norfolk country people still speak of pumpkins as "millions," and call the holly "hulver." One might multiply instances of these old, forgotten names, so common three centuries ago, the derivation of which is often very difficult to trace. In many instances they are corruptions of the Latin nomenclature of the monks; one can hardly account for the local name of "sencion" for groundsel, except as a corruption of Senecio, which was probably derived direct from the monasteries.

The "Herbal" is divided into three books, comprising the whole vegetable kingdom known at that time; these books are divided into upwards of 800 chapters, which, considering the period at which they were written, may be looked on as taking the place of genera. The first book contains all grasses, grains, rushes, reeds, flags, and bulbous-rooted plants; the second, all herbs used as diet, physic, or for ornament and pleasure; the third, trees, shrubs, fruit-bearing trees, resins, gums, roses, heaths, mosses, mushrooms, and sea-plants. The misspelling of the author's name on the title-page must be a printer's error. His friends knew him as Gerard, and his coat-of-arms proves him to be connected with the Gerards of Isley, who did not use a final "e" in their name.

#### THE EARLY HISTORY OF GERARD

is very obscure. He was born at Nantwich in 1545, and educated at Willaston, a village some two miles from that town. It seems very probable that his education was completed there, and that he took up medicine at a very early age. He certainly travelled abroad to some extent, and knew something of Sweden, Denmark, Poland, and Russia, joining a trading-vessel to the Baltic, and acting as medical attendant to the crew. He appears to have been familiar with the Mediterranean, and may have made a voyage to that neighbourhood in the same capacity. In 1562 he was apprenticed to Alexander Mason, a Warden of the Barber Surgeons' Company. His connection with the Company dates from this period, and was always a more or less important one. He was made a freeman on December 9, 1569, and though there is no record of his being admitted to the livery of the Company, he is mentioned as a member of the Court of Assistants in 1595, and Junior Warden in August, 1597. Between these dates "he suffered from a most grievous ague, and of long continuance," though it does not appear to have interfered with his work. In August, 1608, he was elected Master of the Company: the books, however, are missing for that period, and there is little or no record of his office. He died in February 1611 or 1612, and was buried in St. Andrew's, Holborn, but no monument marks

the spot, even its position being unknown. He must have settled in London some time before 1577, since in 1597 he speaks of having superintended the gardens belonging to Lord Burleigh in the Strand, and also in Hertfordshire, for twenty years, and that this work had taken up nearly all his time; therefore he can hardly have practised as a medical man to any great extent after leaving Alexander Mason. Previous to his election as a member of the Court of Assistants he had already acquired a reputation as a skilled herbalist. His connection with Lord Burleigh's gardens gave him ample opportunity to follow his favourite study, and it was largely due to his energy that Lord Burleigh's collection of plants surpassed that of any other nobleman in England, many of them being exotics obtained by Gerard. About this time he appears to have had a house in Holborn, connected with which was a large garden; here he succeeded in growing a great variety of species, both indigenous and exotic.

#### HOLBORN GARDENS.

One can hardly reconcile this quaint old herbaceous garden with the modern ebb and flow of traffic in Holborn. Holborn was then in the outskirts of London on that side, and capable of producing much that would hardly flourish there at the end of the nineteenth century. In the time of Richard III. there were large gardens connected with the Bishop of Ely's palace in the neighbourhood; Shakespeare records the fact in *Richard III.* by making Gloster say, "My Lord of Ely, when I was last in Holborn, I saw good strawberries in your garden there. I do beseech you send for some." This same Bishop of Ely was John de Kyrkeley, who in 1290 bequeathed to the bishopric of Ely all his houses at Holborn, in the suburb of London, together with vines, gardens, and other appurtenances in pure and perpetual alms; these gardens are now known as Ely Place. Dr. Sharpe, in the "Calendar of Wills," mentions that the gardens attached to the palace, which survive only in the name of Hatton Garden, were a characteristic feature of the neighbourhood. Vine Street still bears witness to the Bishop's vineyard, as Kirby Street still recalls the Bishop's name. Dr. Bulleyn visited Gerard's garden, and he mentions having seen 1,100 varieties of foreign and domestic plants. Dr. Pulteney also says that he saw there 1,033 species, though one cannot help thinking that some of these must have been varieties; anyway, it was one of the earliest botanic gardens in Europe.

#### GERARD'S FIRST BOOK.

In 1596, Gerard printed a list of plants which he had cultivated, this being his first literary effort. Considering the carelessness with which it was printed and the scarcity of the volume (only one being in existence, that in the Sloane collection), it seems very probable that this list was only intended for private circulation, or for his own particular use. This is the first known catalogue of any public or private garden in England, and has, therefore, an interest beyond its rarity as a book. A folio edition appeared, with English and Latin names in opposite columns, in 1599. Gerard was a great advocate for the purchase of a piece of ground for the cultivation and study of medicinal plants, and strongly urged the company to buy some land for that purpose. A spot in East Smithfield was chosen, but found unsuitable, and it seems just possible this piece of ground may have been Gerard's own garden, in Fetter Lane. Some money was subscribed for this scheme, but though one or two meetings were held on the subject of "Mr. Gerard's Garden," no active steps were taken, and the idea apparently fell through. In December, 1597, he published (it is said at his own risk) the folio which has made his name famous—the "Herbal," dedicated to Lord Burleigh. The evolution of this work is an extremely interesting story in the making of such books.

#### BOTANY AS A SCIENCE

was first recognised by Aristotle, who may be looked on as its founder. The remains of his own writings and those of his school so frequently show a decided knowledge of plants, that it is quite evident they must have been well versed in the vegetable physiology of that day. Theophrastus, a worthy disciple of so great a master, succeeded to his chair, and wrote several books on the history of plants, but apparently he had no idea of classification, since he does not appear to have been acquainted with more than 400 species



in all; such being the case, a classification was hardly necessary. He devoted much attention to the functional difference of organs, the forms of leaves, the peculiarities of the leaf-stalk, and was the first to point out the great differences between the wood of palms and that of exogens. He also understood the importance of leaves in the life-history of plants. Botany made slow progress until the reign of Nero, when Dioscorides, the Greek physician, wrote a treatise on *materia medica*, but of the 600 plants he mentions the vagueness of description prevents the recognition of more than 400. In his time, however, the sexuality of plants is spoken of in positive terms; this fact Aristotle had refused to accept. Grafting and budding were also well known in Greece and Rome in the first century of our era, and gardening must have been a favourite pastime in Southern Europe at this early period. To quote from a recent essay: "The garden seems the one spot on earth where history does not assert itself, and no doubt when Nero was fiddling over the blaze of Rome there were florists counting the petals of rival roses at Poestum as peacefully and conscientiously as any gardeners of to-day." Under the later emperors, followed by the Byzantine princes, art and science generally decayed, leaving only a mass of falsehood and superstition, and so from the death of Dioscorides until the beginning of the sixteenth century scarcely any addition was made to botanical knowledge in Europe.

#### EARLY BOTANISTS.

The first herbal in English was the "Grete Herbal," published in 1516 by Peter Treveris, and formed the basis on which all that followed were more or less founded. A little later the Bernese physician, Otho Brunfels, published his "*Herbarium Vivae Eiconis*." Previous to its publication the writings of the Arabian herbalists were taken as the textbooks for the schools, full as they were of false translations and exaggerated superstitions. Brunfels appears to us as the Luther of botany, and as the earliest writer who was honestly determined to purify the degraded science and lift it to its proper position. The Germans or Dutch were the first to illustrate their descriptions of plants, and Brunfels was greatly instrumental in perfecting that which afterwards became a very prominent feature in the botanical literature of the period. Interest in the reviving science spread very rapidly, and the knowledge of species became much enlarged—to such an extent, in fact, that compilers became necessary to collect the numerous writings on botanical subjects which were scattered through much of the scientific literature of the early part of the sixteenth century. The first of these compilations was made by Conrad Gesner, of Zurich, often spoken of as the German Pliny, who introduced the system of dividing plants into classes, genera, and species by distinctions derived from differences in the flower and fruit. Among many great names which occur during the sixteenth century, such as Dodoens, Clusius, Matthias de l'Obel, Gerard, and others, we find that of William Turner, the father of English botany. He was born at Morpeth in 1538, and after many wanderings on the Continent in consequence of his voluntary exile from England, he ultimately took his degree at Ferrara, and attended the lectures of Ghinus at Bologna. This eminent doctor first started a separate chair for botany, and was the means by which a medicinal garden was founded at Bologna. Turner then went to Switzerland and formed a friendship with Gesner, the compiler, who thought very highly of him. He returned to England, and published his "Herbal" in 1568.

Following in the footsteps of Turner, Henry Lyte published a work in English which was professedly a translation from the French version of the Dutch "Herbal" of Dodoens, this same work forming the groundwork of Gerard's book later on. Lyte described 1,050 species and figured 870; most of Turner's illustrations were utilised by him, the remainder being some that appeared in a subsequent work by Dodoens. These illustrations also proved very useful to Gerard. Lyte appears to have entirely used a translation of Dodoens by Clusius, and was not by any means an original writer in botany. He was followed by l'Obel, who contributed a great deal to *materia medica* and botany, especially the former. He travelled over much of England plant hunting, and added largely to the number of known species. Under the patronage of Lord Zouch he superintended a physic-garden at Hackney, and introduced into England many new exotics.

Towards the latter end of the sixteenth century botanists generally felt the want of a trustworthy and comprehensive herbal. That of Dodoens had appeared in 1560; Lyte's translation was published in 1583, but was very erroneous, and Turner's book was practically obsolete.

#### GENESIS OF GERARD'S "HERBAL."

John Norton, printer to the Queen, had commissioned a Dr. Priest to translate Dodoens's book into English; unfortunately he died before he had completed the task, and by some means the manuscript fell into Gerard's hands, who determined to use it, though there seems little doubt that he did not know sufficient botany for the task. Johnson, who was the editor and collator of this book, says that Gerard was quite incapable of writing a trustworthy herbal. The facts probably are that he used Dr. Priest's manuscript, and to disguise the fact altered the original arrangement of Dodoens to that followed by l'Obel. He denied any knowledge of the work written by Dr. Priest, saying that he had heard of such a man, who had been working at a translation of a herbal, but that, being dead, his work must have perished with him. The blocks were mostly obtained by Norton from Frankfort. Gerard certainly displayed great ignorance in the original work by misplacing many of the illustrations, and l'Obel, who was asked to correct it, went so far as to say he found in it over one thousand errors. At this point, however, the author stopped criticism by refusing to allow further alteration, saying that the book was quite accurate enough, and that the critic had forgotten his English. In 1597 the "Herbal" was published; however the author may have obtained his material, and whether he ever acknowledged it in the proper way, will not alter the fact that it was vastly superior to any previous publication on botany, and represented an enormous amount of time and labour. Thus, in a very sketchy way, I have endeavoured to trace the course by which this very remarkable book came to be written. Many names which influenced the great revival in the science of botany during the sixteenth and seventeenth centuries might and ought to be mentioned, but they are so numerous that one could hardly speak of all.

With Dodoens's "Herbal" as a base, and with additions from l'Obel, Clusius, and possibly some original work of his own, this volume comprised all that was known of botany at that period. It was much more profusely illustrated than any previous work, and coming at a time when some good book was badly wanted, there is little wonder that it became world-famed; and though at the present day the interest that survives is due to the plates, or the obsolete ideas as to the virtues of various herbs, still we can but admire the patience of a man who, if he was not all original, did the best he could with the material at hand, however obtained, and produced a book which, after nearly three hundred years, can still afford some instruction and a great deal of amusement to a more enlightened age. One of his friends, George Baker, "one of the chief chirurgions in ordinarie" to Queen Elizabeth, had a high opinion of Gerard's attainments, since he says: "I protest upon my conscience, I do not think for the knowledge of plants he is inferior to any; for I did once see him tried with one of the best strangers that ever came to England, and was accounted in Paris the only man, being recommended to me by that famous man, M. Ambroke Parens, and he being desirous to go abroad with some of our herbarists, for the which I was the mean to bring them together, and one whole day we spent therein, searching the most rarest samples. But when it came to the trial, my Frenchman did not know one to his fower." That statement can only apply to Jean Robi, who in 1597 was appointed keeper to the King's garden in Paris. One can hardly leave this quaint old botanist and his wonderful book without some reference to the numerous anecdotes with which he constantly varies the monotony of his descriptions. Having frequently experimented with the mandrake-root, he is quite incredulous as to its shrieking when pulled up, but firmly accepts a more wonderful tale of the goose or barnacle tree, and devotes his final chapter to "this wonder of England." He sums up his great work in this way:—"Having travelled from the grasses growing in the bottom of the fenny waters, the woods and mountains, even unto Libanus itself, and also the sea, and bowels of the same, we are arrived at the end of our history, thinking it not impertinent to the conclusion of the same to end with one of the



marvels of this land (we may say of the world)." What he is pleased to call "the naked and bare truth, though unpolished," vouches for the fact that in the northern parts of Scotland and the islands adjacent, called Orchades, there are certain trees on which grow shells of a white colour, tending to russet, wherein are contained little living creatures, which shells in time of maturity open, and out of them grow those little living things which, falling into the water, do become fowls, which we call barnacles, in the north of England brant geese, and in Lancashire tree geese, but the other that do fall upon the land perish and come to nothing.

"Thus much by the writings of others, and also from the mouths of people of those parts, which may very well accord with truth." "But what our eyes have seen, and hands have touched, we shall declare." He then relates the story, which I give you nearly in his own language, that on an island in Lancashire where there are numerous wrecks of ships and drifted trees, there is found a certain spume or froth which breeds certain shells, like a mussel, but sharp pointed and white, wherein is contained a thing in form like a lace of silk, finely woven, as it were, together, of a whitish colour, one end whereof is fastened into the inside of the shell, even as the fish of oysters and mussels are. The other end is made fast into a rude mass or lump, which in time cometh to the shape and form of a bird. When it is perfectly formed, the shell gapeth open, and gradually a bird appears, which, falling into the sea, gathereth feathers and groweth to a fowl, bigger than a mallard and lesser than a goose, having black legs and bill or beak, and with feathers black and white. He concludes his marvellous statement by saying it is "spotted in such manner as is our magpie, called in some places a pieannet, which the people of Lancashire call by no other name than a tree goose, which place afore-said, and all those parts adjoining, do so much abound therewith that one of the best is bought for threepence. For the truth hereof if any doubt, may it please them to repair unto me, and I shall satisfy them by the testimony of good witnesses. They spawn, as it were, in March and April, the geese are formed in May and June, and come to fullness of feathers in the month after." Gerard himself brought from the Channel Islands to London shells which, on opening, he found in some instances contained living bodies without form or shape, in others which were more mature he found naked bodies shaped like a bird; these he concludes were "the fowls called barnacles." It is unnecessary to say that the six pairs of feet found in the third stage of the life-history of the barnacle are converted into cirri, which are long, curling arms, fringed with cilia, and are used to attract food to the mouth. These were the feathery objects which Gerard describes. The confusion of the barnacle or bernicle goose with the shell-fish dates from a very early period. Even the monks believed in it, or found it convenient to do so, since the barnacle goose was allowed to be eaten in Lent. They considered it fish, not fowl; and Linnæus perpetuated the error by giving the crustacean the specific name *Anatifa*, or duck-bearing.

I will now give you a short account of some of the herbaceous plants of general interest. First,

#### HELLEBORES.

Of these Gerard appears to have been acquainted with only four species, *viridis*, *fatidus*, *major*, and *atrorubrens*. Modern horticulture gives a great number which are readily cultivated in our gardens. This genus may be conveniently divided into three—two native species, *viridis* and *fatidus*, both of which have been employed medicinally, being powerfully drastic and cathartic, the former deciduous, the latter a bushy plant 2 feet or more in height, with much divided evergreen leaves very distinctly bracteate. Next we have *Helleborus major*, with its several varieties, well-known as the Christmas rose, the plant from which the black hellebore of commerce is obtained, a native of Central Europe long in common cultivation, a well-deserved favourite with all lovers of hardy plants. Thirdly, the various species of the Lenten rose, or Oriental hellebores. Conspicuous amongst the Oriental section may especially be noted *atrorubrens*, having long and very persistent foliage, with bright purple flowers produced in profusion from January to March; *colchicus*, a rare species from the Caucasus, with deep plum-coloured flowers and large purple leaves; *H. antiquorum*,

with pale purple flowers and sepals, beautifully imbricated; *H. gutatus*, a beautiful species with deep-green leaves and much expanded white flowers with purple spots; *H. olympicus*, having large spiny leaves and globular flowers; *orientalis*, white sepals, from which many interesting hybrids have been obtained. The hellebores seed freely, and their well-defined pistils, with the rapid growth of the ovary, quickly form inflated follicles. Doubtless all the hellebores vary much in their medicinal activity. Schroff, according to Daniel Hanbury, considers the most potent to be *orientalis*, then follow *viridis* and *fatidus*, whilst *niger* is of the least medicinal value.

From hellebores we naturally turn to

#### ACONITES OR MONKSHOODS.

Of these several species have been long in cultivation. Gerard was acquainted with most of those known to us at the present time. Perhaps no plant connected with pharmacy deserves more attention than *Aconitum Napellus*—the official monkshood—especially when we take into consideration that between sixty and seventy varieties are known to botanists, varying from the dark blue of the typical plant to the *albino* variety, almost pure white. A question of great moment arises, that with a plant whose active principle exists in a well-defined alkaloid, how far hybridisation affects the amount of the aconitia present. This plant is one which deters most careful cultivation; whether the modern pharmacist would be willing to pay four times as much for a definite home-grown root, taking into consideration that the foreign supply is mostly obtained from any species found by the peasants or shepherds who make it their business to dig it at any time rather than the right one, is the reason of my raising this question. *Aconitum pyrenaicum*, with its bright yellow flowers and handsome foliage, *bicolor*, and with white and yellow blossoms, are interesting species in the herbaceous garden. Before dismissing aconites, allow me to suggest that a strange error prevailed. Dioscorides tells us, whilst writing about *Aconitum pardalianches* (a plant, by the way, I am doubtful if it ever existed), "that it killeth panthers, wolves, and all kinds of wild beasts." Theophrastus says, "It killeth cattle, sheep, oxen, and all four-footed beasts within the compass of one day." After a time, the old writers not finding this plant, tacked on *pardalianches* to a *Doronicum* belonging to the natural order Compositæ, in which there are no plants of a decided poisonous character. So that ill-omened name of "leopard's bane" may safely be discarded. It is true that the *Pulicaria*, or flea-bane, and the *Pyrethrum roseum* destroy insects, but this is owing to the choking-up of the spiracles or breathing orifices, so that the tracheæ can no longer convey the air through their system. Salmon, in his "Herbal" (written about 100 years after Gerard), calls the *Doronicum* the wolf's bane *antidote*, and says, "I think it manifest that the dangerous qualities said to be in this plant are raised only from ignorance of fact and not from any real grounds, for as much as experience has sufficiently proved to the contrary; for I find myself it is an excellent cordial, and cures the poison of aconitum and other poisonous plants." This supposed virtue is equally as fallacious as that of its poisonous nature.

#### IN THE SAME NATURAL ORDER

we have the *Podophyllum peltatum*, or May apple, a plant well worthy of attention, with its palmate leaves deeply divided, composed of from five to seven wedge-shaped sections bearing one or two large pure white flowers from the axil of the leaves, having a most delicate mixed perfume of cinnamon and clove. The blossoms expand the latter part of May or early in June, and are succeeded by a sub-acid, succulent, edible fruit. The plant is of rapid growth in favourable situations of shade and moisture. Although of recent introduction in European pharmacy, it appears to have been long known to the North American Indians as a valuable medicine. *Actæa spicata* and *Cimicifuga racemosa* must not be passed by without notice. They are both stately perennials, with deeply-cut biternate leaves and white feathery flowers, and, as their respective names imply, one in spikes, the other in racemes. *Actæa* is a European plant, while *cimicifuga* has for its native habitat the woods of Canada and the United States. Allied to aconites, but much surpassing them in beauty, are



## DELPHINIUMS.

These, with little exception, are of modern introduction, *Stavisaigia* being the only one particularly noticed in old horticulture. At the present time the florists' varieties give us many beautiful herbaceous specimens; many of them are double, blue and scarlet being the prevailing colours. Siberia and the Caucasus furnish us with numerous plants of this genus. *D. cardinale* is a plant of vigorous growth, which attains a height of 4 feet, and has scarlet flowers, with a yellow centre. *D. sulphureum*, Zalil, is an extremely interesting plant from Turkestan; it forms a branching bush 3 to 4 feet in height, composed of stiff, wiry stems, which are covered with flowers about an inch in diameter, of the most beautiful sulphur colour, from forty to fifty blossoms on each stem, rendering it one of the most remarkable additions to our list of hardy perennials for many years past.

## A FEW WORDS ON POPPIES.

Most of these are annuals, excepting *orientalis* and *bracteatum*—the one orange-coloured, the other brilliant red, both with black spots in the base of each petal. *Meconopsis* furnish us with several strictly herbaceous plants, *cambrica* giving us a good example, growing almost anywhere with its bright yellow blossoms—an old crumbling wall, a disused gravel-path, or any dry corner suits it. We have two Indian species of *Meconopsis*: *nepalensis*, a fine foliage plant, with soft, yellow-green leaves, which have dense rosettes. These, in the young state, are folded over as a protection to the tender crowns. The flower-stems are from 4 to 5 feet in height, producing numerous nodding, yellow blossoms—a native of Nepal. Besides this we have *Wallichii*, one of the finest poppyworts in cultivation. This is remarkable from its being the only blue poppy known to us, growing from 4 to 5 feet in height, forming a handsome pyramid; the expanded bloom, perfect in shape and colour, with their numerous yellow anthers, form a conspicuous object. The seeds of this plant were sent over by Sir William Hooker from Sikkim, and first bloomed in the Royal Gardens at Kew in June, 1852; unfortunately, these plants are only biennials. Sir Thomas Brown, a noted physician of the city of Norwich, about 1650, says, that "at times there springeth up of itself in waste ground a red poppy with very long fruit." Some years ago I had occasion to dig a piece of ground in my own garden rather deeply; the following spring I found abundance of this species of poppy, *Glauicum fuleum*; the seeds, no doubt, had laid dormant in the soil for many years. One other poppy before I pass on deserves special notice: this is the Californian or tree poppy, *Romneya coulteri*. This is strictly herbaceous, requiring only a little protection to the crown in winter; it forms a strong bush 6 feet in height, with large, single white flowers, which are not fugaceous, as most of this order. Lastly, amongst the Papaveraceæ, let us note *Sanguinaria canadensis*, or blood-root. The rhizomes and rootlets are well-known in America as one of the eclectic remedies: a charming early spring flower, with its pure white petals and golden anthers.

## OF ANEMONES

Gerard figures thirty sorts, many of which are only varieties, as he in all cases places the single and double as distinct species. Since his day many additions have been made to our list of these most welcome spring flowers: especially may be noted *alpina* and *sulphurea*, both robust plants about 2 feet in height, one having white and the other sulphur-yellow flowers, followed by fruits consisting of large globular heads of feathered achenes. I know of no plants so impatient of being disturbed when once they have been planted on the rock border. These two rarely survive moving, excepting in the young state.

*Apennina*, a bright-blue species, with *blanda*, the Greek form of it. *Ranunculoides*, a wood-loving species, and doubtful native of this country, of a bright yellow and deeply-sected foliage. *Fulgens græci*, from the Morea, is a variety of the South of France *fulgens*, but with much larger flowers and of a brighter colour. *Robinsoniana*, an American variety of our wood-anemone, with large, pale, purplish-blue flowers, produced in great abundance from established plants. *Pulsatilla*, or pasque-flower, of a deep rich purple, clothed with long silky hairs, the carpels terminating in a curious feathery tuft; found in several places in England, on chalk

hills. *Pratensis*, an allied species from Central France with its variety. *Nigracans*, the official plant of homœopathic tincture. *Palmata*, both yellow and white, from the Peninsula, the former with dark-green palmate leaves, scarcely rising above the soil. *Vernalis*, a rock-loving species from the high Alps, with white flowers flushed with purple, and brown silky hairs on the calyx. *Japonica*, both red and white, introduced from Japan about fifty years ago, and now well known to all plant-collectors; well suited for smoky town gardens. These form but a portion of this genus, all but the two last being spring-flowering. Pliny tells us that "the name 'anemone' was given because the flowers never open except the wind doth blow." I now pass on to

## FELWORTS,

as Gerard calls gentians: these are all worthy of cultivation. I found in the Engadine, in addition to *lutea*, that *punctata* and *purpurea* were being collected for the sake of the roots. The two latter appeared more intensely bitter than *lutea*. The roots of gentian contain no starch, sugar and pectin taking its place. In the Engadine and Tyrol they are heaped up in large clamps before they are submitted to fermentation, and afterwards to distillation of an aromatic much-prized spirit. Considering the very slow increase of these plants, it is not to be wondered that in many places they have become scarce; indeed, in many parts of the Tyrol they have almost disappeared. We must also remember the many tons of the dried roots which are yearly exported for pharmaceutical purposes all over the world. In our garden-flowers we must not forget *acaulis*, with its cushions of glossy foliage and intense-blue upright bell-shaped blossoms; *bavarica*, with small box-shaped leaves and brilliant sky-blue flowers; *verna*, a rare indigenous species, but frequent on all the high Alps, with dense growth and bright-blue white-eyed blooms, with a number of others, all of which commend themselves to our notice.

## RUEWORTS.

*Fraxinella* or *Dictamnus*, a native of Germany, not the *Dictamnus* of old writers, which was an *Origanum* from Candia and Crete. Gerard says, speaking of *Fraxinella*, "that it is a very rare and gallant plant." This I can fully endorse, and consider it one of the best and oldest of our border-plants. It is found both red and white, and instances are known where it has out-lived three generations of a family without much increase of the plant. It is readily grown from seeds, which have the faculty of frequently lying dormant in the ground before germinating. When this plant is in flower, after a warm dry day, by putting a lighted match to the inflorescence it becomes a sheet of flame. This is caused by the large amount of essential oil secreted in the flowers; hence the name given to it of "the burning bush."

## CROCUS AND SNOWDROPS.

The former is of chief interest to florists for its several varieties of *vernus*, and also for many autumn and winter-flowering species. We have several doubtful natives of this genus, but I think we must consider they have been all introduced, though Gerard says, "the Saffron crocus grows plentifully in Cambridgeshire, Saffron Walden, and many other places thereabouts as corn in the fields." He must have meant, I think, that it was cultivated. *Crocus sativus* has a thick fleshy corm, hardly to be distinguished from that of *vernus*, except that the covering scales are more netted. Its primitive home is doubtful, having been in cultivation from very early times. It is mentioned by Homer, Hippocrates, and Virgil, and was introduced into this country in Edward III.'s reign, and for many years largely exported to the Continent. It was grown in Essex for about 200 years, and then slowly dropped out of cultivation; Spain has the monopoly of it now. I have flowered it in my own garden in dry, sandy soil, but have never been able to keep it more than one or two seasons. Under the name of *Leucojum præcox minus*, Gerard has our snowdrops, which he calls the "bulbous violet." He has also another variety, the Byzantine early bulbous violet: this is doubtless the one we have of recent introduction, and known as the Crimean snowdrop, which he so correctly figured in his "Herbal." The bulb and the two broad leaves, with the characteristic lines in the middle, give no doubt of the identity of the plant; besides,



he says, "and Clusius calls it the greater early Constantinopolitan bulbous violet."

### THE IRIS

naturally claims our attention, not that the plants are of any particular medicinal value, but rather from the great variety of this genus, all, without exception, being beautiful and interesting plants. They are nearly all quite hardy, and most of them readily grown in town gardens. They are native all through the temperate zones. *Robinsoniana*, from Lord Howe's Island, is an exception, being half-hardy. This plant seems to defy almost all attempts to bloom it in this country. At Kew it has flowered in the Temperate House, but excepting this one instance I do not know of any other. The orris of commerce is supposed to be obtained from *Iris florentina*, an early variety with lovely white, sweet-scented flowers, but *pallida* and the other varieties of the German iris are dried in the same way for perfumery uses. Our earliest species, *histris*, from the slopes of the Lebanon, commences to bloom in the open ground in February. It is soon succeeded by its close ally, *reticulata*, with its delicate violet perfume, and several other rare species from the same source. Unfortunately, these Asia Minor irises (although but recently introduced) become affected with a fungoid growth which has the appearance of a blue mould. It rapidly destroys the corm, leaving only a dry dust-like powder. All forms of bulbous irises are subject to this form of disease. *Iris tectorum*, growing on thatched roofs of Japanese houses, requires, as may be supposed, a dry situation for its success; but the iris of Japan is *kamferi*, a splendid plant with numerous varieties, which requires the margin of a pool or boggy ground. My friend, the late H. B. Brady, told me that he had seen a Jap artisan employing his midday resting-time sitting under a large umbrella gazing at his patch of *kamferi* in full bloom. *Siberica*, as its name implies, a Siberian species, with grass-like foliage and great variations of colour. *Susiana*, or "the widow iris," with its large black-netted bloom-heads, is well worth the care and attention it requires. *Orientalis sanguinea* is one of the best garden species; the buds are red, hence the second half of its specific name. Under the name of *Xiphium*, or Spanish Iris, a bulbous species, which has been cultivated in this country for more than 300 years, we have a well-known favourite, with flowers varying from white to yellow and blue; one of the best species to grow in all private gardens. Allied to it we have *Iris anglica Xiphion latifolium*, of more robust habit than the former. This, also, has every variation of shade in the three colours. These few I have enumerated do not form a tithe of this most interesting family.

### A FEW WORDS ON "DAFFODILS"

that come before the swallow dares, and take the winds of March with beauty." They are favourites everywhere and with everybody. Our old herbalist, Gerard, had a good knowledge of them, and several of the plates in the "Herbal" are drawn with great care and fidelity, especially those of the reflexed or triandrus section. Since his time, and especially of late years, they have multiplied tenfold, both in species and varieties. Indeed, so varied are they that it is difficult to determine the former or to trace the parentage of the latter. The southern part of Europe furnishes us with the chief of this genus, although *monophyllus*, and a few others little known, come from Northern Africa, near Oran. This white hooped-petticoat narcissus (*monophyllus*) blooms at Christmas under glass. In the Pyrenees, the whole of Spain, Portugal, and Italy we find them abundant, both in low-lying pastures and high upland slopes reaching to the snow, as in the Gerez and Estrella in Portugal. They are conveniently divided into three sections, the *Majus coronata*, which includes the Ajax, of which the native *Pseudo-Narcissus* of our English woods is a fitting type—this group also includes all the *Corbularia*, which are the hoop petticoat or Medusa's trumpet; next we have the *Medio-coronata*, with chalice-shaped crown or cup, half as long as the divisions of the perianth, this also includes all the *Triandrus* or Ganymedes; lastly, the *Parvi-coronata*, known as the small-crowned daffodil, or true narcissus; these have the crown less than half as long as the divisions of the perianth. Amongst these we also have the jonquils, as also all the rush-leaved section and the *Taxetta*, or bunch-flowered narcissus. Unfortunately, many of the best varieties,

especially the white-flowered, are subject to the daffodil disease, the result of a fungoid growth, and one which has baffled the attempts of the florist to eradicate; this disease has been but little studied, but its effects are most disastrous. It appears in the first season as a dark-brown thumb-like mark on the sides of the bulb. The next year, in addition to that, we find the rootlets are but ill-formed, and in some entirely wanting. The third year the top of the bulb becomes spongy, producing no blossom; then the end has come. The only remedy I have found efficacious is to take up the roots every season, thoroughly drying them for a few weeks, this giving them complete rest. This seems a natural course when we remember that in their native habitats these bulbs become almost dust dry in the summer months. In the diseased bulbs I have tried, with marked success, dusting them with fresh lime. This acts in the same manner as sulphate of copper, arsenic, or other germicides.

I had intended to carry this subject much further, but the field is so wide that I will not trespass upon your forbearance any longer, and I feel it is not reasonable to expect you all to take the same interest in this subject as myself. A love of plants is inborn, and the circumstances under which we are placed in life foster naturally such a taste. Still, we must all allow that even a very superficial knowledge of botany will much enhance the pleasures both of home and foreign travel.

11.18. MR. R. FITZHUGH, J.P. (Vice-President), said it was his pleasing duty to propose a vote of thanks. He was quite sure they would agree with him in heartily thanking the President for the delivery of his address. (Applause.) They had a short time previously their worthy Mayor in the chair, who gave them a hearty welcome in the name of the inhabitants of the town. He (Mr. Fitzhugh) as Chairman of the local committee, wished the chemists of the town to give them all a very hearty welcome, and he was quite sure they were greatly indebted to those chemists who had exerted themselves to the utmost to give the Conference a good welcome. (Applause.) They could not follow all the President had said, but he hoped that when the paper was published it would give many of them much instruction and pleasure in reading. He now asked them to give a hearty vote of thanks to the President for his valuable address. (Loud applause.)

MR. J. LAIDLAW EWING, as a Vice-President, seconded the vote of thanks. He was sure they appreciated very much the cultured address of the President, and the wide range of knowledge of botany which it showed he possessed. He reciprocated the kind way in which Mr. Fitzhugh referred to their presence in Nottingham, and he knew they would truly enjoy themselves. He expressed regret for the absence of Mr. Young, his colleague at Edinburgh. It gave him great pleasure to second the motion. (Loud applause.)

THE PRESIDENT, in returning thanks, said he remembered away back in his apprenticeship days that his master said to him, "Depend upon it, Octavius, thy love of plants will never lead thee to any good." (Laughter and applause.) He thought the meeting that day had proved that what the old man foretold, was not quite correct. (Applause.)

MR. NAYLOR read the following

### REPORT OF THE UNOFFICIAL FORMULARY COMMITTEE.

The revision of several of the old, and the introduction of some new, formulae have had the attention of the Formulary Committee since my last report, and as some of them have required careful chemical investigations, which, as will be observed, have resulted in the production of papers for the Conference, the committee has deferred the issue of a new Formulary until these have undergone full discussion.

W. MARTINDALE,  
Chairman of the Formulary Committee.

This disposed of official business, and the

### READING OF PAPERS

was then commenced. This was at 11.25, so that business so far had been transacted with commendable celerity. The first paper was



## A REPORT ON COTO-BARK (PART I.),

By W. ELBORNE, B.A. Cantab., F.L.S.

The author's communication resulted from inquiries which had been instituted with the object of ascertaining the botanical origin of coto. Genuine coto-bark is not often met with in commerce; there is, however, a more frequently occurring bark very analogous in physical appearance and structure, evidently closely allied botanically to the true coto, and termed "paracoto-bark." The latter does not contain the active principle (cotoin) of the true bark, and can only be distinguished from coto by a chemical analysis. Coto is said to come from Amazonas, paracoto from the banks of the Mapiri, the botanical origin of both being unknown.

A specimen of genuine coto having been sent to Mr. F. F. Newcome, in Bogota, for the purpose of recognition, a reply was received to the effect that the bark had been recognised there as *canelo*, and was believed to be yielded by a *Drimys*, which latter grew near the coasts of that country (United States of Colombia) and of Venezuela. Upon reference to works on materia medica, it was found that *canelo* (the Spanish for cinnamon) was a recognised term in Mexico and Chili for Winter's bark (*Drimys Winteri*). The structure of the latter being essentially different to that of coto, no reliance could on that account be attached to the *canelo* clue, and it was abandoned. Strange to state, however, a second and totally different line of inquiry terminated in the same perplexing result—viz., *Drimys*. At the sixty-second meeting of the *Deutscher Naturforscher und Aerzte*, held at Heidelberg, there was exhibited a collection of fine chemicals and recent rare-plant derivatives, among which latter were two specimens labelled "Cotoin," one obtained from Bolivian *Coto verum*, the other from a so-called coto-bark that had been received from Venezuela. Specimens of the barks from which these cotoins had been extracted were also exhibited. The author obtained samples both of the cotoins and the barks. The Bolivian *Coto verum* agreed with his specimens of genuine coto, whereas the bark from Venezuela proved to be genuine Winter's bark. The so-called cotoin that had thus been obtained from Winter's bark had been submitted to analysis. In melting-point and qualitative reactions it agreed with the published reactions for cotoin from true Bolivian coto-bark. A quantitative analysis had been made, when its percentage composition was found to differ from that of true cotoin by about 1 per cent. of carbon, the formula for cotoin being  $C_{22}H_{18}O_6$ , and that of the substance from Winter's bark  $C_{22}H_{18}O_6$ . These results were sufficiently interesting to warrant an extended investigation of the subject, which the author hopes to pursue.

Having applied to the museum department of the Pharmaceutical Society for such information on the subject as might be available, Mr. E. M. Holmes, in reply, furnished an account of various specimens of barks (dated 1851) in the Pereira and Hanbury collections, some of which even at that period had been confounded with Winter's bark, but were in reality genuine coto-bark, only not at that time known under the name of "coto." [The name "coto" for the bark originated in 1873.] Owing to the prevailing opinion that coto is yielded by a lauraceous plant, the author drew attention to the fact that a large tree (*Laurus giganteus*) hitherto unknown to science had quite recently been described in the *Pharmaceutical Journal* by Dr. Bayón, of Bogota. It is a native of a district not far from the coto-yielding region, but its bark does not appear to have yet received attention.

Sections of coto-bark were exhibited which had been cut by Mr. Abraham Flatters, of Manchester, forwarded to the author that morning by Mr. E. M. Holmes.

11.45. Mr. A. W. GERRARD said the botanical side of this subject was new to him, but some years ago, in association with Mr. Tanner, he had worked on a large quantity of coto-bark for the active principle cotoin, and the conclusion which he then came to was that it is a mixture. He now understood that Mr. Elborne said that cotoin and paracotoin are identical. If so, could he say how to distinguish them by solvents?

Mr. NAYLOR said he had some conversation with Mr. Holmes about this matter, and understood from him that the two barks could be distinguished by a colour-reaction with nitric acid. He was interested in the statement that

Winter's bark yielded cotoin, or a substance isomeric with it. Had the two substances been tested physiologically?

The PRESIDENT said he recollected, many years ago, when he was serving part of his time with Mr. Lake, of Exeter, seeing a parcel marked "Drimys Bark," and one marked "Cabbage-tree Bark," which had been found in South America, somewhere to the north of Patagonia. This, he thought, fully bore out, what they did not hear then, that the cabbage-tree bark and Drimys bark were identical. The parcel mentioned was never used during the six and a half years of his apprenticeship; and if it was still in the same place, Mr. Lake had a very valuable specimen of *materia medica* in his possession.

Mr. LAKE (Exeter) said he believed he still had the specimen referred to, but, as he had made no investigation in the subject, he could not add anything to what had already been said.

Mr. ELBORNE, replying, said there ought to be no difficulty in obtaining pure cotoin, as it occurred in large crystals, and was not a mixed body. He did not say that cotoin and paracotoin are the same. They are quite different, as paracoto-bark yields a body which crystallises more readily than cotoin, is not pungent like cotoin, and is not cotoin. Moreover, that principle gave a red colour with nitric acid, whereas paracotoin gave a yellow colour. The same reactions were obtained with the barks, and better with the alcoholic extracts. He had not tested the principles referred to in the paper physiologically, but he hoped to have that done before reporting on the subject again.

11.55. Mr. FRANK CLOWES, D.Sc., Professor of Chemistry at Nottingham University College, was called to the platform to read the following paper:—

## NOTTINGHAM SCHEME FOR THE EDUCATION OF PHARMACEUTICAL STUDENTS IN THE TOWN.

By FRANK CLOWES, D.Sc., F.I.C.

The author said that a request having reached him from official quarters to prepare a paper for the British Pharmaceutical Conference meeting in Nottingham, he felt bound to make a practical response, and in selecting a subject his desire was that the paper should treat of something distinctly local in its character, and yet capable of arousing general interest amongst the members of the Conference. No subject appeared to possess those two qualifications in the same degree as that which had been finally selected, and selected, he might say, with the full sanction of the Deputy-Mayor of the town and of the energetic Hon. Local Secretary, to both of whom local pharmaceutical education largely owed its development, if not its birth.

His acquaintance with the educational work carried on in Nottingham dated back some twelve years. Coming into the town as one of the original professors of the University College, he found more than enough to do in forming and organising the chemical department of that college. Of systematic chemical education there had been but little existent before the college was started, but that state of things had been improved upon largely by the desire of the inhabitants; largely also owing to the fact of the superior equipment and staff of the college; and, later on, to the secondary schools providing the means of imparting chemical instruction in such a way as had never before been possible. But there had existed for many years before the foundation of University College an association which practically corresponded to one of the ancient trade guilds—an association whose object it was to fully equip educationally the young pharmaceutical chemist for his future career. He referred to the Nottingham and Notts Chemists' Association. Of the constitution of that Association he need only say that it subsisted mainly on the funds supplied by the master pharmacists already established in the town, the money thus contributed being mainly spent in educating their youthful assistants and apprentices. The teaching-work was undertaken by members of the Association best qualified by their superior knowledge, and by their power of communicating it, to educate the younger men; and from all he could hear the teaching and learning was carried on, not only with much regularity and system, but with much enthusiasm.

When the University College started, the Managing Committee of the Chemists' Association saw their opportunity of further improving their course of instruction. They decided



to transfer their classes to the college, and to place the teaching in the hands of the college staff. He had a very vivid recollection of an interview which took place between delegates sent from the Chemists' Association Council and the new professor of chemistry, in which the latter was sounded as to his willingness to take charge of a special class in pharmaceutical chemistry, and, if possible, to arrange for the teaching of other scientific subjects, a knowledge of which was necessary to the pharmacist. It was almost unnecessary to add that the professor rose to the occasion, and that the classes were soon earnestly at work in their new quarters. A recent experience of German university life perhaps led the professor to look to the very thorough training there given to the pharmacist as the ideal to be aimed at. In those universities the young pharmacist gave his whole time for at least two years to instruction in chemistry, physics, botany, and other necessary subjects. This teaching was not interfered with by any business, except the much-dreaded compulsory military service. That ideal might be a good one, but an experience of nearly twelve years had shown it to be impracticable in this time and this place.

There were advantages, even though there were also disadvantages, in spreading the instruction over a longer time, and allowing it to be given to young men already engaged in their life-business. The main advantage was that they obtained by this system a practical interest in their education which they could scarcely feel when they had not any experience of its necessity and of its application. The main disadvantage was that their working-time was frequently too much monopolised by their business, and they were thus left to pursue their education when weary and jaded, and they really had to devote time which should be spent in rest or in wholesome recreation to the attempt at serious study. However, he was anticipating by introducing thus early the fruits of experience. They soon found that so great a revolution as the immediate introduction of the German pharmaceutical course into Nottingham was not to be thought of for a moment, and he might say at once that he, for one, was not wholly disappointed by this discovery. As a rule, much more satisfactory results were arrived at by working out a system of education suited to the country and the locality in which it had to be given than by adopting the ready cut-and-dried system of another locality, and especially of a foreign country. He was patriotic enough to believe that, while they might learn much from studying carefully all educational systems, even those of foreign countries, and although such study might show them they were much behindhand in their own system, Englishmen would, if left to their own devices, slowly and patiently work out an improvement on their own methods, which would be in every sense more satisfactory than a wholesale adoption of those of others. It was such a development of their own English methods which he believed had been going on slowly and gradually in their pharmaceutical classes in Nottingham.

The result was briefly this. They had now a three years' course of instruction given at the college, which embraces pharmaceutical chemistry, both practical and theoretical, pharmaceutical botany, materia medica, practical dispensing, and physics, both theoretical and practical. This course prepared a student fully for the Minor examination of the Pharmaceutical Society, whilst arrangement was easily made for his continuing his study for the Major examination if he desired to do so. The amount of time which each student devoted to his work was not large—probably not so large as it should be—but it had enabled many to pass their qualifying examination without further aid if they were of a studious character. And it must be remembered that although much of their time was spent away from the college, such time was spent in learning their business, and in ensuring that they should be practical men and not mere bookworms or theorists. That the system at present at work in their college was perfect and entirely satisfactory no one of them would claim or even hope, but that it had gone a long way towards showing the way to secure the decentralisation of pharmaceutical education, and towards continuing satisfactorily the students' training with the business of training our young pharmacists, he thought it would be impossible to deny.

It should be possible for young would-be pharmacists in the larger towns to obtain slowly, and in a way in which they could thoroughly digest and assimilate it, the educa-

tion they required. They should not be forced to reside for a period all too brief in the metropolis, and there be fed with highly-concentrated food in doses far too large to permit of its digestion and assimilation. This was usually the only alternative to laborious and discouraging private study in the provincial home, since the very admirable Metropolitan College was only available to such as were occupied in business in the metropolis in a sufficiently accessible neighbourhood, or to those who could either obtain one of the few available scholarships, or could afford to live the life of students for two or three years without earning at the same time their daily bread. The latter class, he needed scarcely add, was an extremely small one, and might almost be left out of consideration. It was too much to hope that in the many provincial centres which now possessed university colleges and technical schools, something of a kindred nature to that successfully attempted in Nottingham might be done towards helping the education of young pharmacists, and that the decentralisation of education, already so far advanced in other branches, might become a reality also in pharmaceutical training.

It would be seen that success in the direction indicated implied the hearty co-operation of the pharmacists, and of the teachers in each centre. This had been fortunately secured in Nottingham, and the gentleman who had perhaps most largely led to the result was their present Deputy-Mayor, who was at the same time President of their Chemists' Association and Vice-Chairman of their University College Committee. It was unnecessary to add that Mr. Fitzhugh's success was, however, largely due to his being the representative of, and to his being loyally supported by, other members of both the Councils over which he presided. It would certainly be possible to mention, without being suspected of having made any invidious selection, the name of Mr. Bolton, as having been active in the scheme. But he should also wish to chronicle the names of Professor Blake, M.A., Mr. Carr, M.A., Mr. C. Haydon White, M.R.C.S., Professor Heaton, M.A., and of Mr. Sarjeant, who had one and all as teachers done their utmost to further the scheme of pharmaceutical training in the local college.

The experiment had now almost passed beyond the experimental stage. They should undoubtedly continue to improve the course, but the work already done was such as not only paid in examination, but paid also in a sense which was far higher and more satisfactory. It made their pharmacists thoughtful and sincere; it abolished a sham education in favour of a more real one; and it tended to give that higher tone of mind and character which was obtained by association with those who were studying truth and knowledge for their own sake, and not merely in order to secure the substantial rewards which they might bestow. He had been privileged year by year to hear the remarks of the examiners at Bloomsbury Square before whom these young students had to present themselves; and casting aside all that must be taken as unduly appreciative and complimentary to the teachers and originators of their scheme of training, he could assert without undue pride that the examiners undoubtedly detected in many of the Nottingham College candidates the advantageous results which he had already laid claim to. It was too much to anticipate that with the growth of a widespread and properly organised system of education, leading up to a suitably high examination standard (now, he hoped, obtained at last), the status of the English pharmacist might be recognised as it was already recognised in continental countries, and that many of the serious troubles which beset him might become things of the past.

12.4. On concluding his paper Professor Clowes was heartily applauded by the audience, and, in the course of the few minutes which it occupied, the reading of the paper was punctuated with "hear-hears" and acclamation.

The PRESIDENT, rising and addressing the Professor, said: In the name of the Conference I wish to thank you, Mr. Clowes, for the admirable manner in which you have put this subject before us. Your paper is a concise and thorough one, but I do not think it is one which requires discussion. What has been done for pharmaceutical education in Nottingham is a good example to the whole kingdom. There is



no question that examiners can tell whether a man has gone through the three months' concentrated grind or a systematic course of three years, such as obtains in Nottingham; and it must become obvious to all that the three-years man is the better one in every respect—in the examination-room and in the pharmacy. I am also confident that, although the Nottingham course occupies the evenings, in the space of three years any who want it will find the time for recreation. The Conference is deeply indebted to you, Mr. Clowes, for your communication, for although the subject is not pure pharmacy, it is one of deep pharmaceutical interest. (Applause.)

Professor Clowes bowed his acknowledgment of the vote of thanks and retired.

12.7. The next paper read was a

#### NOTE ON COLLODIUM BELLADONNÆ.

By R. WRIGHT Pharmaceutical Chemist.

The above preparation, as originally introduced by Dr. H. Miller, and prepared by Messrs. T. & H. Smith, of Edinburgh, was a solution of an alcoholic extract of belladonna-leaves in collodion and spirit of camphor.

On its inclusion in the Conference Formulary in 1891, the alcoholic extract of the root was substituted for that of the leaves, the idea being that as the root-extract had been introduced into the British Pharmacopœia as a substitute for the green extract previously employed, it would be likely to be equally serviceable for the preparation of the fluid as for the solid plaster.

Such, however, has not proved to be the case; and the formula, as it now stands, is probably less satisfactory than any other included in the Formulary.

The process was criticised by Conroy in a note read before the Liverpool Chemists' Association (*C. & D.* xxxix. 610). He showed that when the official root-extract was employed, only about one-eighth of the extract and two-fifths of the alkaloid were dissolved. By using a rectified-spirit extract slightly better results were obtained—about one-fifth of the extract and three-eighths of the alkaloid passing into solution.

The statements of Conroy as to the unsatisfactory nature of the preparation were corroborated by J. C. Umney. According to Umney, the results obtained with an alcoholic extract of the leaves were little better than with the root-extract. Of three samples of leaf-extract employed, one was soluble to the extent of 85 per cent., the two others to the extent of 21 and 38 per cent., respectively.

From these results it is evident that the Formulary recipe will need revision, and, this being the case, it appears to me to be an opportune time to raise the question as to whether, seeing that the reputation of this medicament was made upon a leaf-preparation, it would not be advisable in future formulae to go back to the leaves as the source of the extract. The chief objection to the employment of a leaf-extract for the preparation of the solid plaster was the soiling of the linen through the running of the plaster, but this objection does not apply to the collodium belladonnæ, seeing that the green colouring-matter is fixed by the collodion. If the leaves are employed, either a solid or liquid extract, prepared with strong alcohol, will have to be made the basis of the preparation. As the result of several experiments and estimations, I find that it is quite possible by reprecipitation to prepare a fluid extract of belladonna-leaves sufficiently strong to warrant its employment for the preparation in question. The following is suggested, therefore, as an improvement upon the existing formula:—

#### (A)

Take of

English belladonna-leaves, in fine powder .. 1 lb.  
Rectified spirit .. .. . A sufficient quantity.

Moisten  $\frac{1}{2}$  lb. of the powdered drug with menstruum, pack in a conical percolator, add a further supply of menstruum, allow percolation to proceed, and collect the percolate in three fractions of 6 fl. oz. each. Moisten the rest of the powder with a little of the first fraction of percolate, pack in a second percolator, pour over it the remainder of the first fraction of the percolate, and, when that is absorbed, add the second fraction, and, finally, as much of the third fraction as may be required to produce 8 fl. oz. of percolate.

This fluid extract should contain not less than .5 per cent. alkaloid.

#### (B)—To produce Collodium Belladonnæ.

Take of

Fluid extract of belladonna-leaves.. 10 fluid oz.  
Pure ether (sp. gr. .720) .. .. 10 ..  
Camphor.. .. .. 130 grains.  
Pyroxylin .. .. .. 183 ..  
Canada balsam.. .. .. 365 ..  
Castor oil .. .. .. 183 ..

Mix the fluid extract of belladonna and ether, and add the other ingredients. Set aside for a few days, and then decant.

12.13. Mr. NAYLOR then read a paper on the same subject, viz:—

#### LIQUID-BELLADONNA PLASTER.

By W. A. H. NAYLOR.

The author having referred to the criticisms which have been passed on the B.P.C. formula for this preparation, submitted a few verified facts, and presented an improved process for the manufacture of the preparation. He considered that any process must meet the following requirements:—It must be one which withdraws the whole of the alkaloidal content from the crude drug, and introduces it with a minimum of loss into the final product. Further, the solvent selected must be such as not only admits of the dissolution of the active principle or principles in their state of natural association, but also withdraws a maximum of extractive. He recommended the leaf in preference to the root of belladonna.

Five distinct extracts were prepared—one from absolute alcohol, two from alcohol of 94 per cent., one from rectified spirit (84 per cent.), and one from alcohol of 65 per cent. In each case the leaf was reduced to No. 20 powder, and percolated with its menstruum until deprived of its alkaloidal principle. After recovery of the spirit by distillation, the residue was evaporated over a water-bath to the consistence of a stiff extract. One of the two extracts from the 94-per cent. alcohol was washed to exhaustion with water. The several extracts were next examined for alkaloid by Dunstan and Ransom's method, and their moisture determined by loss at 212° F. The following table sets forth the results:—

No.		Per cent. Yield of Moist Extract	Per cent. of Moisture in Ex- tract.	Per cent. of Dry Extract	Per cent. of Alka- loid cal- culated on Dry Extract.
1	Alcohol, absolute .. ..	6.86	20.48	5.45	4.05
2	" 94 per cent. .. ..	12.32	16.36	10.30	3.33
3	" 94 .. washed .. ..	2.00	4.5	1.99	.52
4	" 84 .. .. ..	9.00	14.59	7.68	4.53
5	" 65 .. .. ..	31.25	21.06	24.66	2.30

As to the adaptability of these for the collodion, experiment showed that No. 5 extract contained too large a proportion of extractive insoluble in the ether-spirit mixture. Moreover, the brown extractive retained the larger portion of the total alkaloid. No. 3 dissolved all but completely in the ether-spirit mixture, and in the proportion of 4 oz. in the pint, including the official quantity of camphor, pyroxylin, castor oil, and Canada balsam, gave a product that for elegance left nothing to be desired. But inasmuch as the process is wasteful of active principle and expensive, it cannot be recommended without being open to the taunt of bad pharmacy. No. 1 was soluble in the test-mixture to the extent of little more than one-half, but cost of production forbids its use. No. 2 Extract: 53 grains (equivalent to 44.32 grains dried at 212° F.) were treated with 1 oz. of ether-spirit mixture, warmed, shaken at frequent intervals, and set aside for twenty-four hours to deposit, and the bright supernatant liquid assayed for dry extract and



alkaloid. No. 4 Extract (40 grains) was similarly treated, and the results were:—

—	No. 2 Extract	No. 4 Extract
Weight of moist extract taken equivalent to ..	44.32 grs. dry extract	34.16 grs. dry extract
Weight of extract dissolved by ether-spirit mixture equivalent to ..	10.97 " "	13.25 " "
Weight of undissolved extract by difference ..	33.35 " "	20.91 " "
Weight of alkaloidal content present in extract taken ..	1.47 gr.	1.548 gr.
Weight dissolved by ether-spirit mixture ..	.65 "	.403 "
Weight of undissolved alkaloid ..	.82 "	1.145 "

These results reveal the fact that the mixture of ether and spirit (3 : 1) to extract in the proportion here used is an incomplete and insufficient solvent of the active principle of the latter, regard being had to the complex character of the substance with which the alkaloids are associated. From other estimations that were made, it was evident that the proportion of spirit to ether would require to be largely increased if the final product were to represent the potency of either one or other of the extracts. The best results were obtained by using a mixture of equal volumes of rectified spirit and ether.

Trial was made of the formula suggested by Mr. Linford, only substituting leaf-extract for root:—

Ext. belladonnae (fol.) ..	..	..	..	℥v.
Spt. camphor. ..	..	..	..	℥iiss.
Liq. ammon. 880 ..	..	..	..	℥ij.
S.V.R. ..	..	..	..	℥ij.
Æther. rect. ..	..	..	..	℥xij.

The preparation, after standing forty-eight hours, gave a deposit which weighed 132 grains, and when assayed yielded 1.08 per cent. of alkaloid. The extract used contained 2.69 per cent., so that, roughly, a little more than one-half of the active principle had passed into solution.

As a direct process, without the intervention of an extract, was greatly to be desired, a quantity of leaf in fine powder (about No. 60) was treated with rectified spirit by re-percolation, so that 1 part by measure of the final product should represent 2 parts by weight of the drug. The marc was afterwards exhausted by percolation with rectified spirit, and the percolate distilled and evaporated. The resultant extract per lb. of leaf weighed 304 grains and assayed 3.83 per cent., or 11.64 grains of alkaloid. The 8 fl. oz. of spirituous solution contained 14.63 grains, so that 55.63 per cent. of the total alkaloid had been removed by this process of re-percolation. It does not, therefore, appear probable that a preparation of a strength 2 in 1 can be made by a direct method which will contain a proportion at all approaching to the totality of alkaloid present in the leaf. Discarding, therefore, the idea of obtaining a spirituous preparation *without* evaporation that would be satisfactory and of the strength required, two courses of procedure are open for adoption—either the whole of the percolate from a given weight of leaves may be reduced by distillation and evaporation to an extract to be subsequently redissolved in the prescribed quantity of a mixture of spirit and ether, or a specified fraction of the percolate consisting of that first collected may be reserved, and the extract from the remainder added thereto. The author adopted the latter principle in framing his formula, which is as follows:—

#### Liquid Extract of Belladonna.

Take of—

Belladonna-leaves in No. 60 powder ..	20 oz.
Rectified spirit ..	a sufficient quantity.

Moisten the powder with 15 fl. oz. of the spirit, pack it tightly in a percolator, and pour on sufficient menstruum to saturate the powder and leave a stratum above it. When the liquid begins to drop, close the lower orifice and macerate for twenty-four hours: then allow percolation to proceed, gradually adding menstruum until the belladonna is wholly deprived of alkaloid. Reserve the first 7 oz. of the percolate; distil off the spirit from the remainder, and evaporate the residue to a soft extract; dissolve this in the reserved portion, and add enough menstruum to make the liquid extract measure 10 fl. oz.

#### Liquid-belladonna Plaster.

Take of—

Liquid extract of belladonna ..	10 fl. oz.
Ether ..	10 "
Camphor ..	130 grains.
Pyroxylin ..	183 "
Canada balsam ..	365 "
Castor oil ..	183 "

Mix the liquid extract and the ether, and set aside for twelve hours. Decant, and dissolve therein the remaining ingredients in the order in which they occur in the formula.

The liquid extract, which was prepared from English leaves, had a specific gravity of .944, and contained 1 per cent. of alkaloid, or 4.154 grains per fl. oz. The mixture of equal volumes of the liquid extract and ether after decantation had a specific gravity of .800, and contained .439 per cent. of alkaloid, or 1.534 grain per fl. oz. In preparing the extract percolation should not be carried beyond the point that suffices for the removal of the alkaloid, otherwise an unnecessary quantity of semi-liquid extractive of a brown colour will also be removed, which will be thrown out of solution on the addition of the ether. Further, this extractive will carry down with it a sensible quantity of alkaloid. If it be objected that a large portion of the dissolved matter of the liquid extract separates out on the addition of the ether, the answer is that the proportion retained in solution represents the maximum solvent-power of the mixture. It does not seem practicable to vary the conditions so that a larger proportion of extract and alkaloid shall be maintained in solution, and the mixture at the same time shall act as a suitable and complete solvent of the remaining ingredients of the formula.

12.28. The PRESIDENT said, considering the amount of extractive matter that was contained in the fluid extract, he could not see why a definite solution of atropine should not be used to take the place of the drug. Was there any objection to that?

Mr. LINFORD said it had occurred to him that to obviate the loss of alkaloid, when percolating the belladonna-leaves, to use a menstruum of ether and spirit previously made alkaline with ammonia, 2 parts of ether to 1 part of spirit. Reserve this percolate, then percolate with pure spirit; evaporate this second percolate to the consistency of an extract, and dissolve in the ether-spirit one. This he found to give a much better result. He wished also to strongly impress the meeting with the advantages of re-percolation. He used that process regularly, and found that he could often in this way avoid evaporation. He had six 2-gallon stone percolators, in which he divided the drug, and passed the percolate from one to the other until it was exhausted. He suggested that this process should be applied to colloidum belladonnae.

Mr. WRENN thought these papers ought to receive the attention of almost every individual pharmacist. They had to consider two things—i.e., the convenience of the patient and the efficacy of the medicament. He thought the day was coming when every man would spread his own emplastrum belladonnae instead of buying some Yankee perforated introduction. He thought it was imperative for the convenience of the patient that they should omit, rather than add to, any body which did not exist in *Atropa Belladonna*. Canada balsam and castor oil, in his opinion, should be entirely omitted. He submitted the advisability of taking succus belladonnae as a basis of operation. The alkaloid there with the attendant acid, if evaporated almost to dryness and treated with a mixture of equal parts of alcohol and ether, and the subsequent addition of camphor and pyroxylin, formed one of the most potent and most acceptable preparations of any. He should like to ask Mr. Naylor whether he had treated belladonna from the fresh plant and made his extract in that way, and whether he had examined the alkaloidal value of the extract. He (the speaker) had used the fresh extract, and had found it to meet all requirements.

Mr. CLARIDGE DRUCE wished to know from what source the leaf referred to had been obtained—whether German or English. He had the bad quality of imported leaf forcibly brought under his notice by a medical man, who used tincture



of belladonna for a child up to doses of 2 drachms, and had to stop it, not on account of the toxic symptoms of the drug supervening, but for fear of alcoholic poisoning. He then collected some leaves from the Botanic Gardens at Oxford, and although it was past the season (it was in November) the tincture made from the leaves was active in 5-minim doses. He was strongly impressed with the necessity for being careful in the selection of such drugs, and agreed with Mr. Wrenn that it would be better to have them fresh if possible. He also thought that tincture of belladonna should be standardised.

Mr. MICHAEL CONROY said that when he was writing on this subject he suggested that belladonna-root should be treated with ammonia so as to free the alkaloid, and he had intended to follow the matter up, but had been unable to. His idea was, however, that the collodion should be made in the same way as chloroformum belladonnae, and from the root. A better result was obtained in that way than by any other.

Mr. RANSOM said this would be a good opportunity for introducing, not a standardised tincture (which was too weak), but a standardised fluid extract. Such a preparation would be useful, for it could be used for the collodion and other preparations. It was desirable, he considered, that galenical preparations should contain the alkaloids in their natural state—united with their natural acids—(hear, hear)—otherwise they might use atropine, as Mr. Corder had suggested. He was surprised that Mr. Wright had obtained such a large amount of alkaloid as .5 per cent. in the fluid extract. [Mr. WRIGHT explained that that was a 2-in-1 preparation.] That accounted for it. As to the foreign leaf, he remarked that much of it is bad, and much is offered which is not belladonna at all.

Mr. BIRD hoped that they would not go away from the root in making this preparation, as the matter of colour would create difficulty. When the root-extract was made official for belladonna ointment and plaster, the change of colour caused annoyance to medical men and pharmacists. The same thing would happen with the collodion, for in this case it was the root-preparation which they had become accustomed to.

Mr. GERRARD asked what was the comparative therapeutic effect of the collodion made from the root-extract and from the leaf-extract. The new official belladonna plaster was much too strong a preparation, for it caused pustular eruptions and all the toxic symptoms of belladonna. This was because the extract was too strong, and he found that he had to reduce the official quantity by one-half in order to get a plaster which would suit. He did not consider the extract of belladonna-root to be a satisfactory preparation. It was a mixture of two things, he feared—one the alcoholic extract, and another an extract produced by displacing the spirit with water, in consequence of which some of the watery matter came through. He did not think the natural acid was of much importance. It was only malic acid in this case—an acid of less activity than citric or tartaric acid. As to the value of the papers, he considered them to be a decided advance in pharmacy.

Mr. LAKE said that, as the activity of the plaster depended upon the alkaloid, it seemed doubtful if the natural acid was of any benefit.

Mr. WRIGHT, in reply, said he considered that a preparation, whether it be of belladonna or any other drug, should represent the drug itself. If it were intended to make preparations of the alkaloids of the drugs, then their course was clear; but if they were preparing an extract or tincture or any other preparation of a drug, then the preparation should represent the drug in its entirety and the alkaloids in the combination in which they existed in the drug itself. (Hear, hear.) He thought it was rather begging the question to suppose or state as a matter of positive fact that a weak acid in combination with the alkaloid might not effect the physiological activity of the alkaloid itself. Referring to Mr. Naylor's paper, he noticed that that gentleman spoke of employing the drug in No. 20 powder, then a little further on he got to No. 60 powder, and then further on still he said he used it in fine powder. Perhaps he would explain that. If they wanted to exhaust the leaf with strong alcohol, the finer they used the powder the better, as it did not clog in the least. He quite admitted it was an advantage in connection with the process of preparing fluid extract from belladonna-

leaves if the process of exhaustion could be carried to its furthest possible limit. In the process he (the speaker) had submitted that was not done, but at the same time an extract could be got from it stronger. Mr. Naylor showed that, but it would be noticed that while the collodion made from his (Mr. Wright's) extract did not deposit, that made from Mr. Naylor's stronger one did, and he thought that indicated that they came to the same result in the end. He had no difficulty in getting English belladonna-leaves containing from .6 to .8 per cent. of mixed alkaloids.

Mr. NAYLOR, also replying, said he perfectly agreed with Mr. Wright that it was scarcely their province to discuss the question whether the alkaloid represented the physiological action of belladonna in its entirety, or whether there was a difference between the alkaloid itself or the body as it existed in combination with the natural acid. The question was, What was required? and the answer to that was, A galenical preparation. Upon examination of such a preparation, they found that the alkaloid was not present in the free condition. If they wanted that, it was simplicity itself to dissolve a certain amount of atropine in collodion. The experiments he had summarised in his paper had been carried on over a very long time—over a number of months. He had simply made a selection from a large number of notes such as he thought would best answer the purpose. The end they both had in view was the production of a better formula than that which at present existed for liquid-belladonna plaster. That partly accounted for the circumstance that belladonna has been used in different degrees of powder. As to the strength of the preparation, he thought Mr. Wright had rather discounted his statements when he said the simple difference between his proposed method and the speaker's was that Mr. Wright removed a certain proportion—a very large proportion—of the alkaloid by his direct method, that he (Mr. Naylor) removed the whole of it, and then threw down a large proportion of it. (Laughter.) He would yield to Mr. Wright if by his process he could show as good results as he (Mr. Naylor) had placed on record in his paper, and if it could be shown that his (Mr. Naylor's) method yielded a preparation which was too powerful for medicinal application.

The Conference then adjourned for luncheon, which was served in the George Hotel.

#### AFTERNOON.

At 2.30 less than a score of the members had returned to the Exchange Hall, and it was doubtful whether the meeting would proceed, but the PRESIDENT, rising, expressed his regret that so few were present to hear the next paper, which was an important one; still, they must go on, and he would call upon Mr. Wright who, accordingly, read the following paper:—

#### SUGGESTIONS FOR THE STANDARDISATION OF THE ALKALOIDAL TINCTURES OF THE BRITISH PHARMACOPEIA.

By E. H. FARR and R. WRIGHT, Pharmaceutical Chemists.

During the past three years we have been engaged upon a research having the following objects in view:—

1. To ascertain whether the alcoholic strength of the official menstrua for the preparation of the tinctures of drugs containing alkaloids are in all cases the most suitable.
2. To devise accurate and reliable methods for the estimation of the alkaloids.
3. To find the average alkaloidal strength of tinctures prepared from genuine drugs.
4. To test the comparative value of several alternative processes for the preparation of the tinctures.

The work done upon the above subjects has already been published; the principal results obtained are summarised in the table on page 288.

The results recorded in the table show that tinctures prepared from carefully-selected drugs vary considerably in strength, and it is to be inferred that commercial samples would indicate a much greater variation. This disparity in alkaloidal strength must necessarily give rise to a corresponding lack of uniformity in physiological effect, constituting a source of disappointment to the prescriber and, in many instances, of danger to the patient.

The question at once arises as to whether nothing can be done to produce tinctures of definite strength; and it is a



question to which, as practical pharmacists, we may reasonably be expected to furnish a reply.

If a demand were made on the part of the medical profession for galenical preparations absolutely uniform in composition, such a demand would undoubtedly be met, on the part of the pharmacists, with a "Non possumus."

But such a demand has not hitherto been made, and is not likely to be made in the future; for where scientific precision is required, the alkaloids, or solutions containing them, will be employed. On the other hand, where a physician prescribes a galenical preparation of a powerful drug, it may be supposed that he wishes to administer to his patient all the active principles of the drug in the state of combination in which they exist in the drug itself; while it remains with the pharmacist to see that the preparation placed in the hands of the medical man is as nearly constant in strength as the art of pharmacy can make it.

In the case of galenical preparations of many drugs it is manifestly impossible to set up standards of any description, either because the precise active principles are not known, do not possess well-defined chemical and physical characters, or are not capable of isolation in a pure condition. With preparations of drugs containing alkaloids the case is

preparations as uniform in their character as possible. Altogether apart, however, from the difficulty experienced in obtaining drugs of a uniform character, it will be seen on reference to our notes on cinchona and opium (*J.B. of Pharm.*, 1891, p. 497, and *C. & D.*, vol. xlii., p. 78) that the employment of standardised drugs does not secure uniformity in the strength of tinctures prepared therefrom. An alternative method consists in the production of a standard extract, and its utilisation for the other galenical preparations of the drug. This is the pharmacopoeial method for the preparation of tincture of nux vomica, and a similar plan has been proposed by Dunstan and Ransom (*Pharm. Journ.*, series iii., vol. xvii., p. 843), and also by Barclay (*Pharm. Journ.*, series iii., xxiii., 740), for the production of preparations of belladonna.

There are, however, objections to such a process as this.

In the first place, the preparation of the extract involves the exposure to heat of those constituents of the drug most susceptible to change; and the employment of heat does affect the character of the product is shown by the fact that an extract of nux vomica prepared by this process is never entirely soluble in alcohol of the same strength as that with which it has been prepared. The resulting tincture is also

TABLE I.

Tincture	Official Menstruum	Proposed Menstruum	Percentage of Alkaloid in Tinctures	Average Percentage of Alkaloid in Tinctures	Process recommended for Tincture
Aconite .. .. .	90 per cent.	70 per cent.	·045 to ·086	·062	Percolation
Belladonna .. .. .	57 "	50 "	·015 " ·045	·023	Macero-percolation or percolation
Cinchona .. .. .	57 "	70 "	·76 " 1·50	1·0	" "
Colchicum .. .. .	57 "	50 "	·064 " ·119	·085	Percolation "
Conium .. .. .	57 "	70 "	·06 " ·16	·086	" "
Gelsemium .. .. .	57 "	60 "	·020 " ·076	·044	" "
Hyoscyamus .. .. .	57 "	50 "	·008 " ·015	·010	Macero-percolation or percolation
Jaborandi .. .. .	57 "	50 "	·040 " ·152	·105	Percolation
Lobelia .. .. .	57 "	50 "	·028 " ·044	·038	" "
Opium .. .. .	57 "	30 "	—	—	Maceration
*Stramonium .. .. .	57 "	50 "	·020 " ·034	·026	Macero-percolation or percolation
Veratrum viride .. .. .	90 "	70 "	·032 " ·220	·138	Percolation

\* Recommended to be prepared from the leaves.

different. The medical virtues of these drugs admittedly reside in their alkaloidal principles, and any move in the direction of the standardisation of their galenical preparations must evidently take the form of the setting-up of some standard for one or more of the alkaloids present in the drug.

The principle upon which the standardisation of alkaloidal tinctures should be carried out appears to us to be that where any one alkaloid has been proved to be of supreme physiological importance, and such alkaloid is capable of ready isolation and estimation, the proportion of such alkaloid present should decide the question of the standard; but where the activity of a drug is apparently due not to one alkaloid chiefly or entirely, but to an indefinite mixture of alkaloids, then the strength of the preparation should be regulated according to the percentage of total alkaloids.

The cases in which one alkaloid is of cardinal importance are rare. Probably morphine might be instanced as the principal constituent of opium, though the researches of Dott and Stockman (*J. B. of Pharm.*, 1891, pp. 242 to 244) show that the action of the other opium alkaloids more closely resembles that of morphine than has commonly been supposed.

Another case in point is that of the aconite alkaloids, where the masterly researches of Professor Dunstan and his co-workers in the research laboratory have clearly established the fact that the toxic effect of the plant *Aconitum Napellus* is exclusively due to the crystalline alkaloid aconitine. But apart from these instances there is nothing to show that the official tinctures of other alkaloidal drugs may not reasonably be standardised according to the amount of total alkaloid present. The question next arises as to how standardisation on the above lines should be carried out. It might appear at first sight as if all reasonable requirements would be satisfied by the employment of standardised drugs, the responsibility being thrown upon the pharmacist of producing therefrom

much darker in colour than a tincture of the same strength prepared by a cold process, and is apt to throw down an unsightly deposit when kept. The dictum that a tincture should contain the active principles in the exact condition in which they exist in the drug itself, demands that the application of heat in its preparation be avoided if possible. Another objection to the preparation of tinctures from extracts is that very few extracts remain in an invariable condition for any length of time. Some which contain deliquescent mineral salts absorb moisture, and others become hard and dry; and in the latter condition one does not always find it an easy matter to obey the official injunction to "dissolve the extract in the spirit."

Another, and very practical, objection is that the preparation of an extract from a tincture, and its reconversion into tincture by solution in spirit, seems to involve a needless waste of time.

Such considerations as these have led us to the conclusion that the most feasible plan for the production of tinctures of standard strength consists in the preparation of a strong tincture by percolation, followed by its estimation and subsequent dilution to the required standard.

By such a plan as this the employment of heat is avoided, the natural combinations of the drug are preserved, and the active principles remain distributed through such a volume of liquid as may be taken to ensure the stability and permanence of the resulting preparation.

Preliminary experiments were undertaken in order to ascertain how far it would be necessary to carry percolation in order to secure the practical exhaustion of each individual drug. For this purpose 100 grammes of the drug, in powder, was moistened with menstruum, packed in a conical percolator, more menstruum added, and percolation allowed to proceed. The percolate was collected in fractions of 100 c.c., and the amount of alkaloid and extractive in each fraction esti-



mated by processes which have already been described in the series of notes on tinctures published by us.

The results obtained are shown in Table II.

From this table it will be seen that a large proportion of the alkaloid is found in the first fraction of the percolate. In the case of cinchona, the alkaloid present in this fraction amounts to 47 per cent. of the whole; in the leaf-tinctures, from 60 to 66 per cent.; conium and veratrum, about 70 per cent.; while the first fraction collected from aconite, colchicum, and nux vomica actually contains 80 per cent. of the alkaloid present in the drug operated upon. A further inference to be drawn from the results shown in the table is that the practical exhaustion of such drugs as aconite, colchicum, and nux vomica may be effected by using drug and menstruum in the proportion of 1 to 3; that of conium and veratrum in the proportion of 1 to 4; and that in no case would it be necessary to carry percolation beyond

menstruum, and allow percolation to proceed until 10, 12, or 15 fl. oz. percolate has been collected. The marc is then expressed, and the pressings added to the percolate, which is assayed and diluted to the required standard.

The volume of percolate to be collected in each case, together with the alkaloidal standards proposed, are shown in Table III.

The results obtained in the exhaustion of aconite-root are given in Table II., but we are not in a position to make any proposals for the standardisation of the tincture.

For the production of standardised tincture of opium the following process is proposed:—

Take of—

Moist opium in slices .. .. 2 oz.  
Distilled water .. .. 14 fl. oz.  
Rectified spirit .. .. 7 fl. oz.

Rub the opium with the water until it is thoroughly disintegrated, mace.

TABLE II.

Showing Percentage of Alkaloid and Extract yielded by Fractions of Percolate from different Drugs.

Tincture	Alkaloid					Extract				
	Fraction 1	Fraction 2	Fraction 3	Fraction 4	Fraction 5	Fraction 1	Fraction 2	Fraction 3	Fraction 4	Fraction 5
*Aconite .. { A	1	340	105	022	004	002	—	—	—	—
.. { B	2	470	145	026	004	002	13.22	6.54	1.87	0.82
.. { A	1	490	080	016	003	004	—	—	—	—
.. { B	2	720	100	020	005	004	18.16	7.42	1.93	0.71
Belladonna .. { A	1	450	050	036	016	014	7.91	2.16	1.11	0.65
.. { B	2	403	220	088	068	025	14.26	6.90	3.52	1.78
Cinchona .. { A	1	3.12	1.66	60	42	30	18.4	8.6	2.78	1.53
.. { B	2	2.91	1.68	1.4	56	34	17.43	9.52	5.4	2.54
Colchicum .. { A	1	580	175	034	012	004	13.46	1.34	0.58	0.3
.. { B	2	505	030	005	004	Nil	17.10	7.52	0.88	0.62
†Conium .. { A	1	1.373	0351	074	059	Nil	7.32	3.76	1.32	0.81
.. { B	2	650	135	038	024	016	15.76	5.0	1.86	0.70
Gelsemium .. { A	1	112	048	022	022	018	7.91	1.18	0.34	0.28
.. { B	2	280	052	016	005	003	13.23	2.08	0.38	0.20
Hyoscyamus .. { A	1	084	024	010	004	001	16.72	8.46	3.54	1.26
.. { B	2	038	014	003	004	002	11.80	6.84	3.70	2.14
Jaborandi .. { A	1	320	140	008	002	001	17.10	7.52	0.83	0.62
.. { B	2	400	205	066	016	011	14.84	8.33	2.46	0.32
Lobelia .. { A	1	180	030	016	010	014	11.08	2.34	1.10	0.60
.. { B	2	152	052	022	010	004	8.70	3.60	1.68	0.80
Nux vomica .. { A	1	1.825	0335	014	020	014	13.98	2.12	0.44	0.22
.. { B	2	850	172	050	019	006	5.92	1.14	0.39	0.21
Stramonium { Seeds	1	170	024	020	020	008	3.60	0.70	0.44	0.34
.. { Leaves	1	180	030	035	016	003	9.90	3.74	2.34	1.22
Veratrum viride .. { A	1	450	160	040	032	003	4.60	1.26	0.50	0.43
.. { B	2	550	130	028	008	004	12.36	5.18	1.30	0.44

\* The figures for aconite represent (1) ether-soluble and (2) total alkaloids.

† The figures for conium indicate percentage of alkaloidal hydrochlorate.

15 fl. oz. in order to exhaust the amount of drug equivalent to a pint of B.P. tincture.

TABLE III.

Showing Results obtained in preparing Standard Tinctures.

Tincture	Percolate Collected	Percentage of Alkaloid in Percolate	Proposed Standard	Percentage of Extract in Finished Tincture
Belladonna ..	12 fluid oz.	068	025	1.0
Cinchona ..	15 "	1.27	1.0	6.28
Colchicum ..	10 "	156	075	2.04
*Conium ..	10 "	520	25	1.66
Gelsemium ..	12 "	056	025	1.26
Hyoscyamus ..	12 "	012	010	4.14
Jaborandi ..	12 "	1.24	1.0	3.78
Lobelia ..	15 "	052	025	1.08
Nux vomica ..	12 "	360	250	1.24
†Stramonium ..	12 "	037	025	1.48
Veratrum viride ..	15 "	160	1	3.40

\* The conium standard is for alkaloidal hydrochlorates; the standard proposed is equivalent to 2 per cent. conine.

† Tincture of stramonium, from the leaves.

The process we have followed has been to take the amount of drug ordered in the Pharmacopœia for a pint of tincture, moisten with menstruum, pack in a percolator, add more

rate for six hours, then add the rectified spirit and macerate for seven days (strain, press, and filter).

The tincture is assayed by a modification of the pharmacopœial process for the estimation of morphine in opium (THE CHEMIST AND DRUGGIST, vol. xlii., page 77), and is then diluted with a sufficient quantity of a mixture of 1 measure rectified spirit and 2 measures distilled water to bring it down to the standard of 75 per cent. morphine.

2.48. The PRESIDENT said there could be no hesitation on the part of the members in appreciating the value of the paper which had just been read. He was glad that the authors had called attention to tincture of nux vomica, and was particularly pleased with the point which they made regarding the preparation of this tincture from the extract and direct from the drug, as it was his opinion that the latter was by far the better tincture.

Mr. GERRARD said that undoubtedly heat had a powerful effect upon alkaloidal matter, and his own investigations amply corroborated the results of the authors. If they took pure atropine and boiled it with alcohol even for ten minutes, they would find that 50 per cent. of it had gone—that it had changed into another acid—tropic acid or tropine. In the case of nux vomica, although strychnine was not so easily decomposed, still what applied to atropine



applied more or less all round in the case of alkaloids. There should be little heat, or none at all, used in making galenical preparations. One question struck him as arising from the paper—namely, how long would the tinctures maintain their standard when kept on the warm shelves of the pharmacy? Would it not be that 12 or 15 per cent. of alkaloid would be lost? and then where would the pharmacist be when the analyst came along and found this to be so? He considered it would be all-important to know the influence of heat and time on the tinctures.

Mr. CONROY said that he admired the work done by these gentlemen, but he did not feel in a position to criticise it. The work had been gigantic, and he could say that he had read every one of the papers, and read a great deal which had benefited him. He fully endorsed their suggestion to make tinctures from standardised drugs instead of standardised extracts, and he considered that it had been a mistake to adopt Dunstan and Short's suggestion to make tincture of nux vomica from the extract. In the same way the official standardised opium was a retrograde step, and he hoped on the occasion of the next edition of the Pharmacopœia the standard would be raised. What makers did at present was to standardise the tincture of opium, that being the only way of arriving at the right strength. Again he expressed his appreciation of the work done by Messrs. Farr and Wright on the alkaloidal tinctures.

Mr. WRIGHT said he and Mr. Farr had not lost sight of Mr. Gerrard's suggestion in regard to the influence of time and heat, for they had retained samples of all the tinctures they had made, and in course of time hoped to settle the question. (Hear, hear.) He was grateful to Mr. Conroy for the expression of his views, considering the large experience he had: it was a compliment to hear such words from him. The great objection to tincture of nux vomica was that it became hard, and often his assistants would call his attention to the fact that they could not dissolve the extract completely in the spirituous menstruum. He could not help feeling when that happened that if there were extract undissolved, there would also be alkaloid not dissolved. Mr. Wright also called attention to the fact that in making some pharmacopœial tinctures they did not always use the exact drug directed by the Pharmacopœia. It might be only a difference of species, as in the case of jaborandi, when he and his collaborator found one sample which gave an extremely low percentage of alkaloid, and on inquiry they found that this was *Pilocarpus Silloanus*, a variety which Mr. Holmes had shown to be not that intended by the Pharmacopœia. Also in the case of conium, as Mr. Farr would show them that afternoon, there were samples of the drug obtainable from the best sources, which scarcely gave any alkaloidal reaction at all.

3.0. The next paper read was a

#### NOTE ON THE SPECIFIC GRAVITY OF SANDALWOOD OIL.

By MICHAEL CONROY, F.C.S.

The specific gravity of sandalwood oil as given by the various authorities differs to a very great extent. For instance, the British Pharmacopœia states that it is "usually about" .96; the United States Pharmacopœia "about" .945; Squire's "Companion," 15th edition, '971 to '980 when distilled in London, and .990 when distilled in India; "Pharmacographia," .963. Mr. E. M. Holmes, in a very able and interesting paper, published in the *Pharmaceutical Journal* of March 27, 1886, gives the specific gravity, on the authority of Mr. Ince, as .9713 for English oil, and from .9738 to .9797 for German oil. Mr. Peter MacEwan, in a paper published in the *Pharmaceutical Journal* of February 11, 1883, calls attention to the low specific gravity given in the British Pharmacopœia, and recommends that it be raised to .970–.990. More recently, Mr. Cripps states that he considers the Pharmacopœia density too low, and recommends that it be raised to .970. He gives particulars of three samples obtained from English houses of repute. These were .9765, .9759, and .9784.

Whilst fully appreciating the value of these very excellent papers, we cannot overlook the fact that the authors were labouring under the disadvantage of working with samples which they did not make themselves. This note is the result of experiments personally conducted on a manufacturing scale with the object of throwing a fuller light on the subject,

and I hope to be able to show that the specific gravity of carefully-made sandalwood oil is fairly constant, and, on the other hand, that carelessly-made oil, though absolutely pure, may vary to a considerable extent. I also hope to show why the Indian-made oil is of greater density.

A distiller of this oil soon discovers that the density increases as the distillation proceeds, the lighter portion coming over first, and the denser last. This holds good with all essential oils that I have observed. The following two experiments show how the density varies:—

A 6-cwt. charge of very fine Mysore wood was placed in the still, and the oil collected in six fairly equal portions as it came over. The specific gravities of the first, third, and sixth were carefully taken at 60° F. These were respectively .9683, .9763, and .9833, and the whole six fractions when mixed .9752.

A similar charge of very fine Mysore root was next placed in the still and treated in the same way. The specific gravities of the fractions were practically the same, and the whole when mixed together gave .9758.

These experiments show how important it is to mix the whole of the oil of each distillation together, and I think they show how discrepancies have arisen as to the correct specific gravity of this oil.

During the past few weeks I have taken the specific gravities of over a dozen other batches of this oil, distilled under my personal supervision. These ranged between .9750 and .9759, the difference being only in the fourth decimal place. The lowest specific gravity I have met with distilled under my own supervision was one of .9720.

In Mr. MacEwan's paper referred to above, reference is made to the oil distilled in India being of much greater density than that distilled in England from the same wood. The sample of Indian oil examined by Mr. MacEwan had a density at 16° C. of .9896. This oil was specially distilled in Mysore for the museum of the Pharmaceutical Society, Dr. Bidie, of Madras, having got it done at Mr. Holmes's request. There was, therefore, no doubt of its genuineness, and its high density appeared to me to be due to the manner in which the oil is prepared in India. This process is very fully described in Mr. Holmes's paper on the authority of Dr. Bidie, from which it appears that a charge of 50 lbs. of chipped sandalwood is placed in an earthen still, covered with water, which is renewed from time to time, and distillation carried on for ten days and nights, the produce of oil from this quantity of wood being 20 oz. It having occurred to me that this long exposure of the oil to the action of steam, air, and water was sufficient in itself to account for the higher density of the oil, I put my theory to the test in the following simple way:—One pint of English-made oil of known density was placed in a jar with about 5 gallons of water, and kept at a temperature of about 120° F. for ten days and nights. The oil increased in viscosity, became darker in colour, and the specific gravity increased from .975 to .989. The loss of oil in the experiment was  $\frac{1}{2}$  oz., due chiefly to waste.

In England the oil is made in about one-fourth of the time, in much larger operations, with more perfect apparatus, and is carefully collected as it comes over from the still to avoid oxidation. This difference in the mode of manufacture, together with the experiment just referred to, fully explains what has hitherto seemed a mystery, and it explains also why the English-made oil is so much superior to the Indian.

The chief point to be drawn from this note is that the specific gravity given in the British Pharmacopœia is too low, in the face of the fact that all likely adulterants are of lower density. In my opinion, it should be raised to a minimum specific gravity of .972 at 60° F.

My thanks are due to Messrs. Evans, Sons & Co., for allowing these experiments to be conducted in their laboratories.

3.6. The PRESIDENT remarked that he thought the foreign oil was not so good, because the natives were tempted to use the refuse wood for distilling. He also thought that the foreign oil was adulterated.

Mr. DRUCE asked if Mr. Conroy had determined the relative properties of the various fractions which he obtained—e.g., their specific gravity. He also asked if any-



thing was known as to the therapeutic value of the light and heavy oils.

Mr. R. WRIGHT was of opinion that no oil used in pharmacy varied so much as the oil of sandalwood. He had seen it as thin and light as oil of lemon, and as thick as castor oil.

Mr. MACEWAN said this paper was mainly corroborative of previous work, and it was very gratifying to him and others who had advocated that the minimum specific gravity of sandalwood oil should be .870 that Mr. Conroy, from his practical experience in distilling the oil, agreed with them. Sandalwood oil was not only one of the most variable oils used in medicine, but it was also one of the most interesting. Therapeutically, its value originally was based upon the Indian-distilled article. Now, he believed, comparatively little Indian oil was used in this country. Very little indeed was now imported, and what we used was distilled either in this country, in Germany, or in the United States. The sample which Mr. Wright referred to as being a slight as oil of lemon was obviously spurious; but the density of the oil would greatly depend upon the age of the wood, and what part of the wood it might be from which the oil was distilled. If it were nice fresh heart-wood, they would get an oil which might be anything between .860 and .870, for the simple reason that the wood had not been long enough exposed to allow the oil to be oxidised. And so with old wood exposed in chips and small pieces they would expect that it would yield a denser oil. He learned, about a couple of months ago, in conversation with a gentleman who had investigated the distillation of sandalwood oil in Mysore, that the reason why Indian sandalwood oil was so heavy was precisely the one which Mr. Conroy had communicated to the Conference that day as the result of his practical experience.

Mr. CONROY said that the Indian oil was not made from refuse wood, and he found that whether the oil was distilled from imported chips or log made no difference in the density. Indian oil was not adulterated, but very little of it was imported now because the English oil was cheaper. The viscosity of old oil was the result of oxidation, and that made little difference on the specific gravity.

3.15. The next and last paper read this afternoon was a

#### NOTE ON THE ALKALOIDAL STRENGTH OF HEMLOCK-FRUIT.

By E. H. FARR and R. WRIGHT.

In bringing forward the subject of the present note we must apologise for the want of originality in our work, but at the same time the subject is of such importance that we consider it imperative to call the attention of pharmacists generally to the existing condition of things.

In the B.P., 1867, "the dried ripe fruit of *Conium maculatum*" was official, and was used for making the tincture, but owing to the exhaustive researches of Sir R. Christison, Dr. Manlius Smith, and Dr. Harley, who proved the comparative worthlessness of the ripe fruit, and advocated the use of the unripe in its place, the compilers of the present B.P. altered their description to meet the recommendations of the above-named investigators; consequently, the fruit now official is directed to be "gathered when fully developed, but while still green, and carefully dried."

In a note on tincture of conium (*Ph. J.*, 3rd series, No. 1082, 858) we had occasion to refer to the great variation in the strength of the fruit found in commerce, and we stated that of eleven samples then examined, only one corresponded to the B.P. description of conii fructus, that being of English origin. We append the alkaloidal value of the samples then examined, as calculated from the strength of the tinctures yielded by them.

TABLE I.—Showing Hydrochlorates of Mixed Alkaloids per cent.

1	1.304	7	.800
2	.600	8	.096
3	.512	9	.768
4	.568	10	.300
5	.832	11	.300
6	.816		

The sample No. 8 was in fine powder and afforded a green tincture, but it had evidently been overheated in drying, and thus spoiled.

At the time we stated our opinion that the poor quality of commercial fruit was due to the fact that it was allowed to ripen before being gathered, and not owing to loss of alkaloid on keeping, as suggested by Harley; but we determined on an investigation to clear up that point, and to determine what should be the strength of B.P. dried fruit. With these ends in view, a quantity of fruit was collected by one of us from wild plants, in August and September 1892, and in July of the present year, and divided into portions corresponding to the average development of the fruit on each umbel, which would vary considerably, the outer fruit being much larger than the inner.

The samples represented the different stages of growth from the fall of the petals to full ripeness, and were collected from time to time as opportunity occurred. The plants from which they were gathered differed considerably in size and height, according to age and situation. We append the results obtained on estimation of the various samples.

TABLE 2.—Hydrochlorate of Mixed Alkaloids per cent.

	1892		1893	
	Fresh	Dry	Fresh	Dry
Immature, $\frac{1}{4}$ to $\frac{1}{2}$ grown .. ..	—	—	.896	3.00
" " $\frac{1}{2}$ to $\frac{3}{4}$ " .. ..	.975	—	1.049	3.32
Nearly mature, $\frac{3}{4}$ to full grown ..	.935	—	1.088	3.36
Mature, $\frac{3}{4}$ to full grown .. ..	—	—	1.049	—
Mature, a few outer ones beginning to turn slightly yellow .. ..	.475	—	—	—
Mature, yellowish-green to yellow ..	.434	1.44	—	—
Mature, yellow .. ..	—	1.32	—	—
Ripe, grey .. ..	—	—	—	—

The amount of moisture in the fresh fruit varies from about 60 per cent. in the older stages to about 68 per cent. in the younger, but is not a constant proportion.

It will be noticed that the present season's fruit is of better quality than that of 1892—in fact, it may be looked upon as containing the maximum proportion of alkaloid likely to occur. Another point worthy of attention is the rapid falling-away in alkaloidal value which occurs as the fruit begins to ripen, and which, no doubt, is the chief cause of the poor quality of the commercial drug, though we have not been able to collect any sample approaching the poor quality of the average imported fruit.

The next point which engaged our attention was whether the fruit loses any alkaloid when carefully dried. Harley, in his form for tincture of the immature fruit of hemlock, recommends 5 oz. of dried, or 8 oz. of undried, immature fruit, to be made into a pint of tincture; therefore, if 5 cz. of the dried are only equivalent to 8 of the fresh fruit, it must be inferred that about half the alkaloid is lost on drying, as the fresh fruit contains about 65 per cent. of moisture; but our own estimations of dried fruit did not support that conclusion. To settle the point, portions of fruit in three separate stages of development were taken, and divided each into two parts as nearly alike as their condition allowed, though of course, being attached to their stalks, strict accuracy was not attainable. One portion was well bruised, and sufficient spirit and water respectively added to make a tincture containing 70 per cent. of alcohol by volume, allowance being made for the moisture in the fruit; the other portion was dried at 100° F., powdered, and converted into tincture by percolation with 70-per-cent. spirit.

The alkaloids found in the tinctures corresponded very nearly, and indicated the following proportion in the fresh and dried fruit respectively.

	Fresh Fruit	Calculated for Dry Fruit	Found in Dry Fruit
Immature fruit .. ..	.896	2.8	3.00
Nearly mature fruit .. ..	1.049	3.28	3.32
B.P. fruit .. ..	1.038	3.40	3.36



These results prove that no loss of alkaloid occurs on drying hemlock-fruit at 100° F.

There is a marked difference in appearance between tinctures made from the fresh and from dried fruit : that made from the fresh remains bright and free from sediment, whilst that from the dried soon goes turbid and forms a deposit.

With reference to the keeping-properties of the dried fruit we have not much evidence to offer, but the following will be of interest as bearing on the point. The remains of the sample of fruit used in the preparation of No. 1 tincture, described in our paper on tincture of conium previously referred to, were set aside in an open box, and merely wrapped in paper, as received from the wholesale house.

On recently looking up the sample, the fruit was found to be mouldy and worm-eaten. After separation of the larvæ and *débris* the fruit was estimated, and the results proved that there could have been no appreciable loss of alkaloid, as the yield was greater than in 1890, to an extent proportionate to the loss of substance from the depredations of the grubs, who had evidently avoided the alkaloidal portion of the fruit.

After the foregoing evidence afforded by the examination of authentic specimens, we consider that hemlock-fruit, if collected, in the proper stage of development and carefully dried, should yield about 2 per cent. of alkaloidal hydrochlorate and the tincture would therefore yield .25 per cent. of the same salts. It could be given in the same doses as are now official in the B.P.

3.25. The PRESIDENT : This paper, like the others communicated by Messrs. Farrand Wright, is of extreme practical value and use to the pharmacist. As it contains a volatile alkaloid, conium is one of those tinctures which are most open to suspicion, and the fruit as we receive it from the herb-collectors is generally over-ripe instead of being merely fully ripe. The authors have, therefore, done good service.

Mr. RANSOM asked whether the authors had examined any foreign samples of conium-fruit, or whether it had been entirely English.

Mr. ELBORNE also asked if they had any difficulty in meeting with specimens, as it grew plentifully at a spot about ten miles from Nottingham.

Mr. FARR, replying, said as to over-ripe fruit being used instead of fully-ripe, that that was not quite the substance of what they wished to bring forward. What they wished to point out was that the fruit, as soon as it began to turn yellow, immediately lost in strength. It should therefore be collected when it was in the stage of the green samples

## SECOND DAY.

10.15. When the clock of the Exchange Hall solemnly tolled the hour of 10 the Borough Council-chamber was occupied only by the members of the Conference Executive Committee. In a few minutes, however, their deliberations were brought to an end, and a few members drifted in and took their places. When the President called for the first paper on the day's agenda, at a quarter-past the hour, some forty pharmacists were present. This number was, however, nearly doubled before the discussion had progressed far beyond the President's opening remarks. The paper was on

### AN EXAMINATION OF BEESWAX.

By E. G. PARRY, B.Sc., and P. A. ESTCOURT, A.I.C.

A large dealer having recently drawn the authors' attention to the extensive adulteration of the beeswax at present on the market, they obtained twelve samples from various sources with a view to ascertaining if the adulteration was so general as they were led to believe. Of the twelve samples, some of them from the best London wholesale druggists, four were pure and the remaining eight contained some adulterant. The samples obtained from the best houses were the most heavily adulterated. Indeed, one of them might better have been described as "adulterated paraffin," consisting, as it did, of about 75 per cent. of paraffin wax and 25 per cent. of beeswax.

The usual adulterants of this substance are colophony, paraffin, stearic acid, Carnauba wax, and spermaceti. In addition, bodies such as gypsum, ochre, and sulphur have been found by various observers. The use of these latter substances would constitute a very crude and unscientific method of sophistication. The authors only found paraffin, stearic acid, and rosin in the samples referred to.

The general method of analysis used was that of Hübl—by estimating the amount of potash required for neutralisation of the uncombined acids and also that required for the saponification of the ethers. The melting-point and the specific gravity were taken (the latter by W. Chattaway's method), and special tests were applied where adulteration was probable. Rosin was detected by the nitric-acid test in one case only. Five grammes of each sample were boiled with 20 c.c. of nitric acid and after cooling diluted with water and shaken with ammonia : the presence of rosin was indicated by an intense red coloration. Paraffin was indicated in many of the samples by the low amount of alkali required for both the neutralisation and saponification. Its isolation

	Description	Melting-point	Specific Gravity at 15.5° C.	Specific Gravity at 99° C.	Percentage of KOH for Acids	Percentage of KOH for Ethers	Total Percentage of KOH	Calculated for Cerolic Acid	Calculated for Myricin	Approximate Percentage of Beeswax	Adulterants
1	Pure unbleached ..	72°	.9800	—	8.98	4.0	12.98	65.7	48.3	56.0	Rosin
2	" bleached ..	64°	.9620	—	2.33	7.43	9.76	16.8	89.6	100.0	—
3	" ..	60°	.9560	—	2.7	6.00	8.70	19.9	72.4	84.0	Paraffin and stearic acid
4	" unbleached ..	64°	.929	.8150	1.96	7.29	9.35	14.4	88.0	100.0	—
5	" ..	57°	.9240	.7920	2.18	2.67	4.85	15.9	25.2	30.0	Paraffin and stearic acid
6	" ..	57°	.9180	.7857	1.63	4.7	6.23	11.2	56.7	66.0	" "
7	" ..	64°	.9620	.8185	1.96	7.0	9.07	14.4	84.5	100.0	—
8	" bleached ..	62.5°	.9630	.8180	2.4	7.1	9.50	17.5	85.7	100.0	—
9	" ..	59°	.9660	—	1.25	6.6	7.85	9.2	79.7	—	Paraffin
10	" ..	51.5°	.9393	—	0.61	2.46	3.07	4.5	29.7	35.0	"
11	Unbleached ..	59°	.9451	—	2.37	6.22	8.59	17.4	75.0	88.0	Paraffin and stearic acid
12	" ..	61.5°	.9346	—	1.29	3.06	4.35	9.4	37.0	44.0	" "

shown. It would not entail any difficulty at all, because at that stage the bulk of the fruit would be of the full size, and possibly one-fourth would not be so. The best tincture was made from the fruit in the particular stage indicated. Referring to the samples, he said of the eleven examined by them in the first Table, only one, which reached about 1 per cent., was English, the others being foreign samples. They had been able to get as much of the English fruit as they required. It grew plentifully in Sussex. (Applause.)

3.28. The Conference at this point adjourned for the day; the excursion to Belvoir Castle occupying the rest of the afternoon

was effected by decomposing the beeswax by boiling it with concentrated sulphuric acid. The mixture frothed, and much sulphurous acid was evolved; charring also took place. The mass on cooling soon became solid, and was washed with water and exhausted in a Soxhlet's apparatus with ether. This operation was repeated two or three times. The paraffin hydrocarbons were thus separated in a nearly pure state. The melting-point of this was taken, and in nearly all cases found to be about 4° to 6° C. below that of the sample from which it had been extracted by the above operation—for example, see the table, Nos. 5 and 6. The paraffin melted at 54°.



On the previous page is a table embodying the results of the analyses. The accepted figures for genuine wax are as follows:—

	Specific Gravity at 15.5° C.	Specific Gravity at 100° C.	Melting-point	Percent- age KHO for Acids	Percent- age KHO for Ethers
Unbleached wax ..	.9330	.8220	63.5°	2.0	7.5
Bleached (air) ..	.9610	.8180	63.5°	2.0	7.5
Bleached (chemically) ..	.9640	.8270	63.5°	2.4	7.1

Although paraffin and rosin were the only adulterants which the authors were able to actually isolate, in those cases where they extracted the hydrocarbon wax the percentage of potash used for neutralisation of the free acids was greater than the amount of beeswax present required, and they could only assume that this was accounted for by the presence of stearic acid. For example, in sample No. 5 in the table the percentage of myricin found was 25; taking 85 per cent. as an average pure wax, this would represent 30 per cent. of beeswax, which would require about 0.6 per cent. of potash for the neutralisation of the free acids. This sample required practically 2.2 per cent.—that is, 1.6 per cent. in excess—which represents 8 per cent. of stearic acid.

The only reason the authors had for offering this note to the Conference was to point out to what an alarming extent even the best druggists are supplying adulterated wax, and they thought the Pharmacopœia might well give some fuller and more decisive tests than it at present does for this article.

10.20. The PRESIDENT said this was a very serious indictment that Mr. Parry had made, and required careful attention. He had no idea that beeswax was adulterated to anything like the extent it appeared to be. Living in a country district, he had no difficulty in obtaining from farmers and beekeepers sufficient beeswax for his requirements; but this did not apply to London, especially as they depended for their supply on the wholesale houses. Who was responsible for this adulteration? It was a very serious matter. He always supposed when they got their wax in the half-basin shaped blocks that it was pure wax—sometimes indifferent in colour, but not adulterated.

Mr. NAYLOR said he thought it must be borne in mind that beeswax had other uses than that of pharmacy. There was such an admixture as that referred to by Mr. Parry, of solid paraffin and beeswax, and he did not think it was at all uncommon for wholesale houses to be asked for that admixture under a particular name, and, of course, it was used for a particular purpose; but it was, he thought, not used for making pharmaceutical galenicals. He was surprised to hear that the article was adulterated with stearic acid. He would like to know whether there was any further evidence, apart from the analytical data given in the paper, for the statement. He should also like to know if Mr. Parry had taken pure beeswax and added it to so much paraffin, and then to so much stearic acid, and so on, and did he find his results correctly checked? He was surprised at the results placed before them, and he thought they must be accounted for in some other way than by direct and wilful adulteration. (Hear, hear.)

Mr. EWING deprecated the use of such a sweeping statement as that made by Mr. Parry. In Scotland they had not the slightest difficulty in getting good beeswax. They got more than they could use, and he thought that for such a statement to get into the papers was apt to give a bad impression of them.

Mr. LINFORD said that one source of adulteration of beeswax with paraffin might arise from the fact that in the country beekeepers used "sets," which they introduced into the hives, and these sets were made of paraffin wax. The melting-down of the wax with these sets might account for 10 per cent. of paraffin in the wax. (Applause.)

Mr. GRIERSON thought the authors had done a great service to the retail and wholesale trade of the country. It was high time that attention should be called to the gross adulteration of beeswax. In the wholesale trade beeswax was sold at a price much below the market price. It was at the present time offered at 1s. 2d. per lb., and genuine wax

could not be bought in large quantities under 1s. 4d. or more per lb. The retail trade, however, had the matter much in their hands. It was perfectly possible to get a genuine foreign wax equal to the English. He should like to ask if Mr. Parry's tests were ready ones; if that were so he thought that much might be done in facilitating the testing of the wax.

Mr. PURDON said the difficulty he had experienced in obtaining a really fine, useful, properly-constituted beeswax had been so great that for many years he was led to seek for it away from London, and obtained it direct from a farm in Essex. It was a very different thing from anything they could obtain from any house in London.

Mr. CONROY said the wholesale houses were not to blame in the matter. He understood Mr. Parry to allude chiefly to white wax.

Mr. PARRY: No, not at all. Seven were yellow, and five were white.

Mr. CONROY was surprised at that. This particular beeswax was intended for tailors, and for uses of that description, but for pharmaceutical use plenty of pure beeswax could be obtained from any London or provincial house. He had never found stearic acid in wax. The general adulterant was spermaceti in white wax, and ceresine in yellow.

Mr. DRUCE thought they ought to get wax when they asked for it.

Mr. BURFORD (Leicester) said he had found a large amount of yellow soap in wax. (Laughter.)

10.30. Mr. BUTLER thought with Mr. Conroy that much of the foreign wax imported into this country was quite equal to anything that could be produced in rural districts in England, and from a commercial point of view it was quite as valuable. As against Mr. Grierson's statement he said they could get comparatively pure foreign wax at from 1s. to 1s. 2d. per lb.

Mr. CONROY: One common adulterant of foreign wax was stones weighing from 7 lbs. to 14 lbs. (Laughter.)

Mr. PARRY, in reply, said he did not expect so much discussion. He knew there was a mixture of paraffin and beeswax on the market which was not supposed to be used for pharmaceutical purposes. (Applause.) He understood that flat and saucer wax were adulterated with paraffin. He was careful to get every sample of pure genuine wax. Mr. Naylor did not appear to believe in 70 per cent. of paraffin. All he could say was that he still had the sample by him, and he would send it to Mr. Naylor. If the wax were boiled with concentrated oil of vitriol, the mass cooled, and extracted with ether, no beeswax remained; that was the way they separated out the wax in every case. As regards stearic acid, he did not make a strong point of that. Mr. Ewing had referred to his statement being a very strong one to appear in the papers. He (Mr. Parry) hoped it would appear, especially in the pharmaceutical papers. The wax might be all right in Scotland, but the samples reported upon were obtained in London. (Laughter.) He thought he had only made a mild attack on beeswax compared with what it ought to have.

Mr. NAYLOR said it was not a question of the detection of paraffin in beeswax, but there were no check experiments to show that they were quantitatively correct.

Mr. PARRY: In nearly every case we actually weighed the paraffin that we extracted, and as a rule it was found that it corresponded within 5 per cent. of that indicated by saponification. (Loud applause.)

#### NOTE ON EASTON'S SYRUP.

By R. WRIGHT, Pharmaceutical Chemist.

The original formula for this syrup, as published by Dr Aitken in his "Science and Practice of Medicine," included (1) the preparation of ferrous phosphate by precipitating a solution of ferrous sulphate with an excess of sodium phosphate, (2) the preparation of quinine hydrate by treating an acid solution of the sulphate with a slight excess of ammonia, and (3) the solution of the well-washed precipitates, together with a fixed quantity of strychnine, in dilute phosphoric acid; the process being completed by the addition of sugar, which was dissolved in the solution without the employment of heat.

As originally devised, the syrup was intended to contain the equivalent of 1 grain quinine sulphate,  $\frac{1}{12}$  grain strychnine (alkaloid), and 1 grain hydrous ferrous phosphate in each fluid drachm.



The process published by Dr. Aitken was faulty in more than one respect, and although, judging from the quantities given in the formula, the evident intention was to produce 24 fl. oz. of syrup, the wording of the recipe was so vague and indefinite, that in the hands of different operators it might yield, as shown by P. W. Squire (*CHEMIST AND DRUGGIST*, vol. xlii., 795), 25, 29, or 31 fl. oz.

Taking into account the indefiniteness of the original recipe, and the susceptibility of the ingredients to undergo physical and chemical changes, it is not to be wondered at that the pharmaceutical mind has been greatly exercised over this compound, with the consequent result that numerous suggestions for its improvement have been made.

The following is a list—necessarily incomplete—of writers on the subject:—

- T. B. Groves, *Year-book of Pharmacy*, 1869, p. 35.  
 W. I. Howie, *Year-book of Pharmacy*, 1876, p. 588.  
 E. B. Shuttleworth, *Year-book of Pharmacy*, 1877, p. 244.  
 T. M. Clague, *Year-book of Pharmacy*, 1889, p. 380.  
 W. Lyon and W. Martindale, *Pharmaceutical Journal*, series iii. vol. xxiii., p. 795.  
 P. W. Squire, *THE CHEMIST AND DRUGGIST*, vol. xlii., pp. 422, 795.

An analysis of the literature of the subject shows that the attention of pharmacists has been directed mainly to the following points:—

1. The process best adapted for the introduction into the preparation of a definite quantity of ferrous phosphate.
2. The composition of the deposits (crystalline and amorphous) which appear in the syrup.
3. The cause and prevention of the development of colour in the syrup on keeping.
4. The excessive acidity of this and other phosphatic syrups.

Several methods have been employed for the preparation of the ferrous phosphate. By Easton's original process at least 30 per cent. was lost, and in the B.P., 1867, sodium acetate was introduced, by which means the loss was reduced to about 20 per cent. Schweitzer proposed the substitution of sodium bicarbonate for sodium acetate, in order to neutralise the free acid, and this suggestion was adopted in the last edition of the British Pharmacopœia. By this means practically the whole of the phosphate theoretically producible is obtained.

It was, however, shown by Howie and others that in the phosphate thus prepared the proportion of ferrous phosphate was not greater than 50 per cent. H. W. Jones (*Pharm. Journ.*, series iii., vol. v., p. 541) was the first to suggest the production of the phosphate in solution by the direct action of phosphoric acid upon the metal, and this process is now very generally followed.

The deposit which occurs in the syrup varies in its character. As thrown down by old specimens it usually consists of ferric phosphate in an amorphous condition. Sometimes, however, as shown by Clague in a note read before this Conference in 1889, a distinct crystallisation takes place, accompanied frequently in cold weather by gelatinisation of the syrup and subsequent solidification. The crystals formed consist of an acid phosphate of quinine.

The development of colour in phosphatic syrups was shown by Groves some years ago to be due to the production of caramel by the action of free phosphoric acid on the sugar. This conclusion is supported by the fact that the amount of discoloration in the syrup appears to vary according to the percentage of acid and of sugar present. The development of colour is also accompanied by partial oxidation of the iron, and is proportionate to the amount of iron converted into ferric salt, the whole series of changes being induced through the agency of atmospheric oxygen.

Not only is the coloration of phosphatic syrups attributable to the action of the free acid upon the sugar, but the crystallisation of the quinine salt has been referred by Dott, Lyon, and Squire to the same cause.

It is somewhat remarkable, therefore, that when in the last edition of the British Pharmacopœia the proportion of free acid in the official syrup of phosphate of iron was raised by 50 per cent., the fact would have escaped criticism but that attention was drawn to it by Conroy, in a note read before the Liverpool Chemists' Association. I believe that most, if not all, the ills of which we have to complain with

regard to Easton's syrup, and also to syrup of phosphate of iron, are due to their extreme acidity.

Now, it has been shown that the latter preparation may easily be made with only half the B.P. quantity of phosphoric acid, and that a syrup so made is stable and satisfactory. Lyon has also proved that a preparation of this character is well adapted for the production of Easton's syrup, yielding a product which will keep for a reasonable length of time without depositing, crystallising, or undergoing discoloration.

A careful review of the whole subject has led me to the following conclusions:—

1. That the ferrous phosphate is best prepared by the direct action of phosphoric acid upon metallic iron.
2. That the employment of the official *syrupus ferri phosphatis* in the process for making this syrup should be discontinued.
3. That the quantity of sugar should be reduced by about 10 per cent., as suggested by Martindale and Clague.

The subjoined formula is drawn up in accordance with the above conclusions, and is submitted to the consideration of this Conference, and especially of the members of the Formulary Committee, in the hope that it may be found more satisfactory than existing formulæ:—

Take of—

Iron wire, free from oxide	..	..	75 grs.
Concentrated phosphoric acid, sp. gr. 1.5	..	..	11 fl. drs.
Strychnine, in powder	..	..	5 grs.
Phosphate of quinine	..	..	120 grs.
Simple syrup	..	..	13 fl. oz.
Distilled water	..	..	a sufficient quantity

Place the iron wire and the phosphoric acid, previously diluted with an equal volume of distilled water, in a small flask, plug the neck with cotton wool, and heat gently until the reaction is complete; then add the strychnine and the phosphate of quinine, and shake till dissolved; filter the solution into the cold syrup, wash the filter, and add as much more distilled water as may be required to make the volume of syrup up to 1 pint.

The above preparation will contain 1 grain phosphate of iron,  $\frac{2}{3}$  grain phosphate of quinine, and  $\frac{1}{12}$  grain strychnine in each fluid drachm.

11.0. At the conclusion of the paper, Mr. WRIGHT called attention to three samples of the syrup, one made by the original process, the second by the Formulary, and the third by his own revised method.

Mr. STROTHER asked if the method of bleaching in sunlight had been tried.

Mr. WRIGHT thought this would be a good means of developing colour. (Laughter.)

THE PRESIDENT had found the syrup simple as regards making but difficult to keep. If this were due in part to excess of acid, Mr. Wright's method would remedy this. He (the speaker) supposed the discoloration to be due to the same cause. Where small quantities of the syrup were required, it would be better if liquor strychnine could be substituted for the powdered alkaloid as more likely to enable excessive dosage to be avoided.

Mr. HILL wondered how Mr. Wright's formula differed from the formula given by Mr. Lyon in his paper. So far as he had been able to gather there was very little difference, and as Mr. Lyon had done his work in consultation with him (the speaker), he had had an opportunity of seeing what was done. The syrup made by Mr. Lyon much resembled the sample sent round by Mr. Wright, and kept perfectly under the most severe tests. The chief point which Mr. Lyon dealt with was the question of the separation of crystals. Mr. Wright had said these crystals were acid phosphate of quinine. Was this statement based on experiment, or was it merely speculative? Mr. Lyon, in the course of his work, attempted to ascertain what the crystals were, but no method of effecting this was free from the serious objection of causing the decomposition of the substance. The speaker believed Mr. Lyon had proved that the separation of crystals was due to the presence of an excess of phosphoric acid, and that such separation could be avoided by reducing the percentage of acid and avoiding any other change in the formula. The product was perfectly stable and satisfactory. Perhaps the reduction of sugar therefore, was unnecessary, and undesirable. With regard to the development of colour,



he had gathered that it was powerfully affected by sunlight. He was not quite sure about that, but had an interesting sample of the article which he had intended to bring to the meeting. Some years ago he had purchased a sample which was offered for sale in a grocer's establishment. The density of this article was low, but beyond this and a slight separation of crystals it seemed all right. He had kept this sample some four or five years in a place where sunlight was absolutely excluded: at the present time it was black as tar, and altogether a very remarkable specimen, which he would be glad to submit to any gentleman who would like to investigate the colouring-matter. He had not gathered that Mr. Wright had advanced the question very far, or that they had in the formula a very decided improvement on the formula of Mr. Lyon. On the whole the speaker was inclined to regard the question of the preparation of Easton's syrup as settled. The only point still open was the constitution of the crystals which separated.

Mr. BIRD believed that, beyond the action of phosphoric acid on sugar, there was another cause for the discoloration of the syrup—namely, an interaction between the quinine salt and the iron. A solution of phosphate of quinine and strychnine could be kept colourless for a long time, and the same with ferrous phosphate. If, however, these solutions were mixed, a distinct colour appeared, which increased almost indefinitely. He did not know the cause of this, and had never heard it explained. The best plan would be, in his opinion, to make a syrup without the iron phosphate, this latter being kept in separate solution. By this method the syrup could be sent out quite colourless.

Mr. GRIERSON observed that anyone who had made the syrup would have noticed that in dissolving the quinine salt in the ferrous-phosphate solution a coloration was produced. Ferrous phosphate itself, of course, became dark on keeping. The cause of the darkening was probably threefold—being in part due to the oxidation of ferrous phosphate; in part the result of an interaction between this and the quinine salt; and, thirdly, somewhat determined by the production of caramel. With regard to the formula of Mr. Wright, he (the speaker) thought the syrup looked almost too thin, and did not regard a month's keeping in a closed bottle as a very crucial test for the preparation.

11.0 Mr. WRIGHT, replying to Mr. Hill, said that in a paper read before the Conference in 1883, he himself (Mr. Wright) had shown—and believed he had been the first to point out—the fact that the *syrupus ferri phosphatis* of the B.P. could be made with half the official quantity of phosphoric acid, and that the syrup so made would keep for a long period without discoloration. He had at that time in his possession samples made in 1883, which he had been tempted to bring to the meeting; that made with the smallest quantity of acid showed the least discoloration, being straw-coloured. He had also shown on the earlier occasion that the amount of discoloration was proportionate to the amount of free acid in the syrup. As regarded Mr. Hill's championship of Mr. Lyon's work, Mr. Wright stated that Mr. Lyon had made use of his (the speaker's) note on the syrup as a starting-point for his own work, and had shown that his (Mr. Wright's) *syrupus ferri phosphatis* could be employed for Easton's syrup, and that the product so made would keep for a long time. (Laughter.) Mr. Lyon's formula was that of the B.P.C. Formulary, only differing in the use of Mr. Wright's *syrup. ferri phos.* Mr. Wright disclaimed, however, any assumption of originality in his paper; he had submitted his formula to Mr. Naylor, who had suggested a paper on the subject. This formula also differed from Mr. Lyon's in that the latter made his syrup by a number of stages, which, by the newer process, were all combined in a single *modus procedendi*. He (the speaker) had not proved that the crystals which separated were phosphate of quinine, but believed that Mr. Lyon had stated as much, being only in doubt as to which phosphate of quinine was present. The literature of the subject had been carefully looked up; he believed Mr. Dott had stated very emphatically at a meeting of the Conference, and later at a meeting of the North British Branch of the Pharmaceutical Society, that the crystals were quinine phosphate. Mr. P. W. Squire also made a statement to the same effect. With regard to the suggestion that no reduction of sugar was necessary in the formula, Mr. Martindale had explained the necessity for this reduction, and Mr. Clague had also stated positively, and, he believed, proved, that the

gelatinisation and solidification of the syrup were due to the quantity of sugar present. At any rate, these changes took place more readily in the presence of a quantity of sugar. He believed that the syrup prepared by his formula would keep for twelve months easily under any circumstances. He would, therefore, recommend the process: perhaps it would be better to say as the "Lyon's modification formula." (Laughter)

#### NOTES ON EFFERVESCENT CAFFEINE PREPARATIONS.

By LEWIS OUGH, F.C.S., Pharmaceutical Chemist.

Having occasion some time ago to examine numerous samples of commercial effervescent preparations, a difference in taste was frequently noticed in samples stated to be of similar strengths, and this difference was confirmed on estimation of the active ingredient, which was frequently found to be below the amount stated.

Being unable to find any note or paper dealing with this subject, it was thought that the publication of the results of analyses of a series of commercial specimens would be of interest, and, although I had hoped to have tabulated results of others, besides caffeine preparations, circumstances have not permitted, consequently these must be left for some future occasion.

The specimens examined have been the citrate and hydrobromate, which, in most cases, have been taken from original bottles of well-known makers, the strength being stated on the labels.

The estimation in each case has been conducted as follows:—A weighed quantity of the preparation has been carefully dissolved in water, slight excess of dilute ammonia added, and the solution shaken up with four successive quantities of chloroform, which has been separated and evaporated to dryness in a tared dish on a water-bath and weighed. The residue was in each instance identified as caffeine by the murexid test.

It is almost unnecessary to mention that these preparations are usually labelled as containing so many grains of active ingredient in each drachm (or teaspoonful). The results obtained were as follows:—

TABLE I.—*Effervescent Citrate of Caffeine.*

No.	Stated strength	Actual strength
1	1 in 60	1.95 in 60
2	1 " 60	1.35 " 60
3	1 " 60	2.69 " 60
4	2 " 60	1.64 " 60
5	2 " 60	1.90 " 60
6	2 " 60	1.21 " 60
7	3 " 60	2.97 " 60
8	3 " 60	3.10 " 60
9	5 " 60	3.45 " 60
10	5 " 60	5.31 " 60

TABLE II.—*Effervescent Hydrobromate of Caffeine.*

No.	Stated strength	Actual strength
1	1 in 60	.64 in 60
2	1 " 60	1.20 " 60
3	1 " 60	2.32 " 60
4	1 " 60	.91 " 60
5	2 " 60	1.93 " 60
6	2 " 60	1.30 " 60
7	2 " 60	1.98 " 60
8	3 " 60	1.96 " 60
9	3 " 60	1.57 " 60
10	3 " 60	2.13 " 60

In calculating these results, the official formula for the alkaloid and the citrate has been taken, and the hydrobromate as  $C_8H_{10}N_4O_2 \cdot HBr \cdot 2H_2O$ , as given in the *Year-book*, 1891, page 40.

In reviewing the above results, it will be seen that in Table I. only three samples (Nos. 5, 7, 8), and in Table II. a similar number (Nos. 4, 5, 7), may be looked upon as being correct in containing the amount of caffeine-salt as stated.

Nos. 3 in each table were manufactured by the same firm, and one is quite at a loss to understand why the alkaloid is so much above the stated strength; but even the taste of these



compared with a test-sample made to contain 1 grain of the alkaloid salt in each drachm, was very much more distinct and bitter. The other results are rather more favourable; but surely, with a little more care in their manufacture, these preparations may be easily made to contain the exact amount of active ingredient in the finished product, and it is hoped that, attention having been called to the matter, this state of things will in future be rectified.

As apparently the use and sale of these important preparations are steadily increasing, and as in all probability their adoption will in time become more general it is important that the members of the medical profession especially, may rely upon the article being absolutely reliable and of the strength stated; and seeing that the preparations usually met with in commerce vary considerably, it appears to be time that a definite standard of strength should be fixed, and I would suggest that certainly not more than two in each instance should be adopted—viz., the citrate 3 and 5 grains in each drachm, and the hydrobromate 1 and 3 grains in each drachm. In conclusion, I beg to call attention to a sample of effervescent citrate of caffeine sweetened with saccharin instead of sugar, which appears in many instances to have distinct advantages over the ordinary kind.

The above experiments were carried out in the laboratories of Messrs. John Richardson & Co. (Limited), Leicester, whose courtesy I wish to acknowledge in allowing these results to be published.

11.16. Mr. CONROY was much astonished that in such simple preparations so much carelessness should be exhibited. Anyone who was accustomed to make these granular preparations would be aware how easy it was to add the correct amount of ingredients. At the same time, he did not wish to throw any doubt upon the methods adopted in the work of Mr. OUGH.

Dr. SYMES agreed that it seemed very extraordinary that in a preparation in which accurate results could be easily obtained such differences should be observed. This was especially so since the first series contained on an average 2 grains per drachm, though stated to be of 1-grain strength, while the series stated to be of 2-grain strength was nearer to 1 grain. Was it possible that the two series had been interchanged? (Laughter.) He would not suggest that this had been done by the author of the paper, but in the course of sending out the articles. These preparations were growing in favour, but there was a tendency to order them to be taken in teaspoonfuls—a very indefinite method. Not only did teaspoons vary in size, but the amount taken would be affected by the size of the granules. He was therefore in favour of very fine granules, never approaching the size of those of the citrate of magnesia made to meet the public taste. In this way the accurate measurement of doses would be much facilitated.

Mr. E. F. HARRISON asked if control-experiments had been made; he regarded it as almost essential that in such investigations the methods adopted should be placed beyond suspicion by comparison with control-experiments.

Mr. OUGH: In each instance I made check-experiments.

Mr. PARRY asked what was the advantage of sweetening with saccharin. The question was prompted by his experience of saccharin-sweetened lemonade in the town on the previous day. (Laughter.)

Mr. BIRD wished to know whether the samples were obtained from wholesale houses. He could readily understand that a difficulty would be experienced in getting a uniform preparation if the attempt were made to mix an ounce of caffeine with a pound of the damp powder: the mass would rapidly aggregate into large granules which would be made homogeneous only with great difficulty.

Mr. OUGH said that most of the samples he examined were got from original packages with the maker's original label on them. Number 3 was distinctly labelled 1 grain in a drachm, and in each instance the proportion came out to nearly 3 grains. He was himself so surprised at this that he did the estimation three times, and then had the experiments repeated by a friend, whose figures came out pretty close to his own. With regard to the saccharin-sweetened variety he had shown it because he had been asked some

11.25. time ago to make some for experimental purposes.

## THE PHARMACY OF THE THYROID GLAND.

By EDMUND WHITE, B.Sc. (Lond.), F.I.C.,

*Pharmacist to St. Thomas's Hospital.*

Premising that the thyroid gland had taken an assured position in materia medica, Mr. White pointed out that the removal of the gland (he confined himself exclusively to that of the sheep) from the freshly-slaughtered animal must be accomplished with certain precautions to ensure asepsis in the case of hypodermic preparations, and, at least, strict cleanliness in preparations for administration *per os*. The slaughterman should cut out the gland with the surrounding tissue without exposing or allowing his knife to touch the gland itself. Trimming could be done at home, and with despatch to avoid putrefactive change; it would be found most convenient to separate the two lobes (average weight 45 grains).

The preparations described were:—

1. The fresh gland entire, given by the mouth.
2. Glycerine extracts (a) from fresh glands, (b) after treatment with absolute alcohol.
3. Dilute-alcohol extract.
4. The precipitate produced by the addition of absolute alcohol to glycerine extract.
5. The dried gland.
6. The precipitate produced by formation of calcium-phosphate in glycerine extract.

With regard to dosage, the author had found satisfactory results in myxœdema, from one-sixth of a gland or its equivalent daily *per os*. For the hypodermic method a glycerin extract had been hitherto employed.

1. *The Fresh Gland Entire* was given finely minced in wine or the like. It had also been given lightly grilled. Patients had naturally some repugnance to the method, and experience had shown that preparations could be easily obtained which possessed the desired activity, so that it was not necessary to give the structural elements of the tissue.

2. *Glycerine Extract (a) from Fresh Glands.*—The formula employed by Mr. White was:—

Thyroid glands	..	..	..	162 (lobes)
Glycerine	..	..	..	$\frac{1}{2}$ fl. oz. or a sufficiency
Chloroform-water	..	..	..	$\frac{1}{2}$ „

The lobes were rubbed down with one-fourth their weight of broken glass, and macerated with  $\frac{1}{2}$  oz. each of glycerine and chloroform-water for twenty-four hours. Expression through linen and adding the mixed menstruum up to 12 fl. oz. completed the process. Twenty minims of this product were equivalent to one-sixth of a gland.

The chloroform served the double purpose of a preservative and flavouring agent. By setting the extract aside for a few days and then decanting from the deposit its appearance was somewhat improved; or it could be filtered almost bright through paper under pressure.

So made, the product had been kept three months without any apparent decomposition or loss of activity. It was best given to the patient in the form of "drops," since dilution to the form of a "mixture" would render it liable to decomposition in a few days.

Sterilisation and filtration could also, of course, be effected by Arsonval's apparatus, but for administration *per os* these processes were unnecessarily troublesome.

(b) *After Treatment with Absolute Alcohol.*—The glands were sliced thinly, covered with absolute alcohol for four days, removed, freed from adherent alcohol, and treated as above. The object of the preliminary treatment with absolute alcohol was to coagulate colouring-matter and proteids, and so obtain a cleaner extract. The product, which was much more easily filtered and almost colourless, was under trial therapeutically.

3. *Dilute-alcohol Extract.*—This was prepared on similar lines to the glycerine extracts, using for each gland  $\frac{1}{2}$  fl. oz. of 25-per-cent. alcohol, and making the final product measure 6 fluid drachms. One fluid drachm was therefore equivalent to one-sixth of a gland. The alcohol very much improved the taste and odour of the product, which, when filtered, was pale red and nearly clear. A sample was shown which contained 2.68 per cent. of total solids and .16 per cent. ash, equal to 8.5 grains of extractive matter for each gland employed. Therapeutical results hitherto obtained



had been promising. The preparation was more easily filtered than the glycerine extract, and not so sticky.

4. *The Precipitate Produced by the Addition of Absolute Alcohol to the Glycerine Extract.*—One fluid ounce of glycerine extract (a) poured into 3 fl. oz. of absolute alcohol yielded a precipitate which could be easily filtered out and dried without heat, weighing about 64 grains, 16 grains being equivalent to one gland. This preparation had been found to be active,\* and was pharmaceutically satisfactory. The author suggested the addition of sugar of milk to the dry precipitate, so that 3 grains would be equivalent to one-sixth of a gland. The product was a pale grey powder with a very slight odour and taste. If stored in a dry place it would probably keep good a considerable time.

5. *The Dried Gland.*—The preparation of the dried substances was difficult to effect without injury to the active principle, and the product too bulky. Mr. White characterised the idea as inelegant and retrograde.

6. *The Precipitate Produced by Formation of Calcium Phosphate in the Glycerine Extract.*—Obtained by diluting 3 fl. oz. of glycerine extract (a) with 1 pint of water, adding 55 minims of phosphoric acid, sp. gr. 1.5, and then lime-water to neutralisation. The precipitate obtained by decantation was collected on muslin, strained under strong pressure, rubbed to a coarse powder, and dried at a temperature not exceeding 35° C., or over sulphuric acid. The proportions given yielded rather under 18 grains of dry powder to each gland employed. After weighing the product it was finely powdered and sugar of milk added, so that 18 grains should be exactly equivalent to one gland.

Mr. White had devised this process on the hypothesis that the active principle of the gland was a ferment.

The composition of the dry precipitate averaged 50 per cent. organic matter, 40 per cent. calcium phosphate, and 10 per cent. moisture when dried at 120° C. It was a greyish powder, without taste or odour, non-hygroscopic, and permanent for over six months.

The average amount of organic matter obtained from each gland was 7½ grains. With each 3-grain dose of the finished powder, therefore, only a little over 1 grain of material derived from the thyroid, the greater portion of which was probably inert matter, was given. The author intended to apply this method to glycerine extract (b) if this were found to be active. It contained very much less organic matter, and should therefore yield a more concentrated preparation.

This "thyroid powder" was the first dry permanent preparation introduced into medicine, and had been used with uniform success in a very large number of cases of myxœdema.

The organic matter carried down by the calcium phosphate was still under investigation.

In conclusion Mr. White urged pharmacists to take up the work, as by so doing they would not only enhance their reputation, but at the same time retain a considerable business in their own hands which otherwise would inevitably drift into the hands of large manufacturers. He also protested against the application to any preparation of a specific name or title indicating that it was the active principle of the thyroid gland until it was really known what the active principle was.

The PRESIDENT said they were all obliged to Mr. White for his excellent paper, although the question naturally arose if the thyroid-gland preparation was likely to come into general use. He thought, however, that modern pharmacists should be equal to the occasion by providing the best means for isolating it.

Mr. EWING said this was a very important paper, and the author had done a great service in bringing it forward. He would like to ask how long the glycerine extract was likely to keep. That question had often been put to him. The hypodermic extract, so far as his experience of it in Scotland went, had fallen into great disfavour, and he had heard of one case of blood-poisoning after its use. The medical men there did not care to use it.

Mr. GERRARD said there was something very attractive and mysterious about this preparation. Mr. White had mentioned that the preparation might be taken in a grilled

form and yet exercise its activity. On the other hand, he rather objected to the drying of the gland itself and using that as a remedy. Perhaps Mr. White would explain that, and give the reasons why he had an objection to dry powder or the dried gland itself. In the powdered condition as he (Mr. Gerrard) prepared it it was active. In an alkaline preparation it might be diluted with sugar, milk, or phosphate of calcium; but it was necessary to dry it rapidly. In his opinion the gland in itself did not contain anything of a dangerous character, and no evil results attended the eating of some by a dog in his laboratory. He thought an alcoholic solution of the gland was not a proper form.

11.45. Dr. SYMES said he had had some experience in this preparation; he could not say that when given by the mouth it acted as effectively as the hypodermic injection.

Mr. RAIT also spoke to the use of the preparations by the medical men in the West of Gloucester.

Mr. HARRISON noticed that Mr. White, both in the dose and strength of preparations, took the standard from the proportion of the gland, and not from the weight. Could he not take, instead of the proportion of the single gland, as standard, a definite weight of it?

Mr. RUTHERFORD HILL spoke as to the use of the preparation in Edinburgh, but doubted the advisability of the use of glycerine in preparing the extract, owing to the dislike which patients had after a short time to medicines containing glycerine.

Mr. W. H. SYMONS spoke as to excretion of uric acid by the patient under treatment with the extract, and said if the uric-acid products could be removed from the gland it would be better for the preparation.

Mr. WHITE replying, said he had kept one of his specimens for several months, and with care it could be preserved in a well-stoppered bottle. The hypodermic extract was very nice, and answered well, but it was a great worry, and he would strongly advise pharmacists to steer clear of it. As to Mr. Gerrard's remarks about cooking the glands, they were merely grilled or warmed through, and the temperature of the interior did not rise very high, and was practically untouched. As to the strength and potency of the organ, he had known several cases of mishap resulting from overdose. The active principle, he held, was a ferment. The structure of the gland itself was typically glandular. Mr. Harrison had asked about the reasons for taking a proportion of the gland as the standard for dosage. Two sheep of the same weight would very often have thyroids of very different weights, and he thought that taking the average result was more satisfactory than having the doses by actual weight. Of the curative effect he thought there was no doubt; and as to the objection to the use of glycerine, that must be qualified by the fact that only 5 minims were required to be used per week. The same remark would apply in regard to the use of calcium phosphate.

Mr. NAYLOR then read the following paper:—

#### PAPAW.

By FREDERICK DAVIS, B.Sc.

12.10. Papaw is the active principle of the *Carica Papaya* or papaw-tree. This plant, a native of South America, West Indies, and other parts enjoying a tropical temperature I am informed by Mr. Jackson, A.L.S., of Kew, varies in height from 5 to 20 feet according to age. It is of an herbaceous character, and when well founded bears a plentiful and continuous supply of fruits.

The cylindrical trunk is simple, and bears at the summit a tuft of palmately-lobed leaves. The stamiferous flowers are arranged in a racemose manner, whilst the pistillate flowers are for the most part sessile. The plant is dioecious, belonging to the *Passifloræ*. The trunk and leaves abound in a milky juice which possesses the power of rendering the toughest meat tender in a very short time.

The fruit, termed the "papaw," is employed by the natives in a variety of ways—in its unripe state being boiled and used as a vegetable, and in its ripe state eaten as dessert. The leaves are used as a soap in washing.

Papaw may be prepared from the juice of the plant by treating with alcohol, dehydrating the resulting precipitate, and extracting with water, preferably at a temperature from 36° to 40° C. The commercial varieties differ largely, not only in colour and appearance, but to a great extent in

\* See *Deut. Med. Woch.*, March 16, 1893.



proteolytic action. The colour varies from light-brown to nearly white, and I have observed generally the more nearly colourless the sample the greater its activity. Papain is an albuminoid body, but differs from peptones in the fact of not yielding a precipitate with either acetate of lead or perchloride of mercury.

As previously stated, the commercial samples of papain vary considerably. I therefore considered it necessary to subject some of these to dialysis, thereby obtaining the active principle in a fairly pure state. It may be on this account that past researchers obtained such varying and conflicting results. If a larger quantity of water be employed in experimenting with the same quantity of papain and dried fibrin or albumen, it will be found to influence the final results very markedly; also that with a larger quantity of water, a smaller quantity of the same sample of papain, and the same quantity of fibrin, a different digestive result is arrived at—the temperature being maintained throughout at 35° C.

Albumen was employed in the following instances, being more reliable for experimental purposes than dried fibrin.

*Experiment I.*—Albumen, 3 grammes; papain, .3 gramme; distilled water, 50 c.c.; digested thirty-eight hours, at 35° C. Neutral solution. Result: digested, 1.785; residue, 1.215.

*Experiment II.*—Albumen, 3 grammes; papain, .25 gramme; distilled water, 100 c.c.; digested forty-eight hours at 35° C. Neutral solution. Result: digested, 1.935; residue, 1.065.

*Experiment III.*—Albumen, 3 grammes; papain, .3 gramme; hydrochloric acid, .005 per cent.; water to 500 c.c.; digested forty-eight hours, temperature 35° C. Result: digested, 2.005; residue, .995.

*Experiment IV.*—Albumen, 3 grammes; papain, .3 gramme; hydrochloric acid, .050 per cent.; water, 500 c.c.; digested forty-eight hours, temperature 35° C. Result: digested, none; residue, 3 grammes.

With a higher percentage of acid the results compare with the last experiment—namely, no conversion into peptones whatever. The presence or absence of peptones was ascertained by the copper test. With regard to digestion in alkaline solution, papain is found to increase in proteolytic action if the alkalinity is not above .25 per cent., carbonate of soda being employed for the purpose.

*Experiment V.*—Albumen, 3 grammes; papain, .3 gramme; carbonate of soda, .25 per cent.; water, 100 c.c.; digested forty-eight hours, temperature 35° C. Result: digested, 2.358; residue, .642.

*Experiment VI.*—Albumen, 3 grammes; papain, .3 gramme; carbonate of soda, .20 per cent.; water, 500 c.c.; digested forty-eight hours, temperature 35° C. Result: digested, 2.507; residue, .493.

Digestion takes place in media containing a much larger percentage of sodium carbonate, but in no way approaching the above results. The action of papain with milk is in every respect in ratio with the foregoing results, but the fat is not emulsified excepting, of course, to the extent of the alkalinity of the medium.

Recapitulating, we find papain to be active as a digestive in neutral and weakly alkaline media, but its action is entirely stopped by the presence of .050 per cent. of hydrochloric acid.

Statements have been made that papain is capable of digesting living tissue, and an experiment is quoted in Christy's "New Commercial Plants and Drugs" (No. 8), where Professor Finkler says he found certain preparations of papain to dissolve living frogs and worms. I have experimented largely in this direction, and can say positively that frogs were in no case digested; death occurred, and the amphibian decomposed, but no peptones were formed—in fact, the acid developed in the dermis of the frog is sufficient to prevent the action of papain. Papain appears to act as a poison to the frog; the creature will not live for long in a solution of papain, but decomposition certainly does not take place until after the death of the animal. I think, therefore, nothing further need be said upon this point.

With regard to the products of fermentation by the action of papain upon proteids, I have found undoubtedly a resemblance to that of trypsin, and by following the suggestions of Dr. Sidney Martin, of University College, proved positively the formation of various amido-acids, tyrosin, and leucin, and, by further decomposition, indol was produced.

In conclusion, I have to thank not only Dr. Sidney Martin for most valuable suggestions, but also Messrs. Christy and Professor Finkler for samples of papain and specimens of the fruits.

Mr. PARRY said that some of them had seen a pamphlet recently published, in which the statement that papain was distinctly active in an acid solution occurred. In fact, that paper was absolutely opposed to that of Mr. Davis. It seemed peculiar that two chemists, experimenting upon the same stuff, obtained from the same maker, should have such different results.

Mr. GERRARD said he should like to have asked Mr. Davis how he determined the development of the digestion—by what analytical methods he determined the formation of peptone. It was very easy to say that a given substance was digested, but they must bring forward evidence to prove that it was digested. The mere fact of using a little acid, some albumen, and papain, and obtaining some kind of solution, was not evidence of digestion. He would like also to have asked the author how he got the proof that his albumen in the case in question was peptonised. He (Mr. Gerrard) always found that it was much easier to peptonise albumen in its raw state, and the finer the albumen was divided the quicker it would peptonise.

Mr. DRUCE said the juice of the papaw-tree had been used by the natives of the islands where it was found to disintegrate tissue. They wrapped their tough meat in the leaves of the tree, and found that it decidedly reduced the toughness.

Mr. NAYLOR said he wished it to be understood that Mr. Davis did not state in his paper that albumen was not digested at all in the presence of acid and papain, but he stated that when the acid was present in a certain proportion, then peptonising action ceased.

#### THE IPECACUANHAS OF ENGLISH COMMERCE.

By E. M. HOLMES, F.L.S.

In view of the controversy which has gathered of late years about ipecacuanha, the relative value of the stem and root, and the general pharmacology of the different varieties of the drug, Mr. Holmes thought it might be useful to direct attention to the varieties and qualities of the drug met with in commerce, and to show in concise form the characteristics of spurious ipecacuanhas that occasionally enter the London drug-trade.

The ipecacuanhas of English commerce may be divided into two sections—

1. Those that are derived from the genus *Cephaelis*.

2. Those that are derived from other genera belonging to the same or to different natural orders.

I. OFFICIAL IPECACUANHA (*Cephaelis Ipecacuanha*, Rich.).—Of this kind there are several commercial varieties or qualities.

A. *Brazilian or Rio Ipecacuanha*.—When of good quality the roots are 1 to 2 lines in diameter, and externally of a reddish or blackish-brown colour. Specimens without a powdery surface are to be preferred, since the powdery appearance is often due to the remains of moulds. A good sample should yield about 80 per cent. of bark.

B. *Indian Ipecacuanha*.—This is derived from the plant cultivated in John (Straits Settlements), and has been introduced only during recent years, being imported from Singapore. Commercially it is distinguished from the Brazilian kind by possessing more of the delicate rootlets. According to an analysis by Mr. Ransom\* it contains 1.7 of (the so-called) emetine as against an average of 1.66 per cent. in the Brazilian kind, and may therefore be supposed to be of good quality.

C. *Mouldy Ipecacuanha*.—Under this heading is included the sea-damaged root, which is calculated to constitute 75 per cent. of the total import. The statement that the mouldiness does not affect the amount of alkaloid present needs confirmation.

D. *Woody Ipecacuanha*.—This variety contains an excessive proportion of the woody stem (up to 30 or 50 per cent.). This stem is easily recognised by its smooth, not annulated surface, remarkably thin bark, and by the presence,



visible under a good lens, of pith in the centre of the woody column. As the stem is not official, and is probably one-third weaker than the root, it should not be used for pharmacopœical preparations.

**B. Doctored Ipecacuanha.**—This quality consists of inferior, woody, or mouldy ipecacuanha that has been washed and dried. It has a dark colour and clean epidermis, contains few large pieces, and the bark has been much broken off the root in the process of washing. By this latter character and its dark colour it is easily recognised.

**II. CARTAGENA OR SAVANILLA IPECACUANHA** (*Cephaelis acuminata*, Karsten).—Though the import of this variety has increased recently it is not a new article, being probably identical with the grey annulated ipecacuanha of Persia, which Hanbury describes as "occurring in pieces of larger diameter than ordinary ipecacuanha, with fewer, more irregular, and less prominent rings." Professor Guibourt remarked that considerable quantities of it arrived unmixed with the ordinary sorts; that he thought it a distinct kind, coming from a different part of Brazil, and derived from another species of *Cephaelis* (Pereira, "Mat. Med.," vol. ii., pt. ii., p. 53). The description is exactly applicable to the Cartagena ipecacuanha of the present day, characterised by the less prominent and more distant rings and transverse fissures. The radiate structure of the central woody column is also more distinctly visible than in the ordinary ipecacuanha.

Under the microscope it presents, according to Karsten, a distinctive feature, in the fact that the cutical parenchyma has two distinct layers, which is not the case in ordinary ipecacuanha.

Analyses by Dr. Urninel, Conroy and others indicate that Cartagena ipecacuanha varies, like the Brazilian drug, in percentage of alkaloids, but that on the whole it is probably of equal alkaloidal strength. [Attention was called to the presence in it of a crystalline alkaloid not identical with that of the Brazilian drug, and a list of works on materia medica was given in which the root of *Cephaelis* had been figured.]

**III. SPURIOUS IPECACUANHAS.**—This class includes emetic roots, known as "Poaya" in South America, in common with ipecacuanha. They are chiefly derived from the natural orders Rubiaceæ and Violaceæ, and one to the Polygalacæ.\* Those which have been identified in English commerce are three in number—viz. (1) *Psychotria emetica*, (2) *Richardsonia scabra*, and (3) *Tonidium Ipecacuanha*.

A large number of others, obtained from international exhibitions and continental museums, have been examined by Messrs. Tschirch and Ludtke, and structural details given in the *Archiv. der Pharm.*, 1888, p. 444, &c. [Mr. Holmes noticed such as had been met with in commerce in this country.]

**A. Black or Greater-striated Ipecacuanha** (*Psychotria emetica*, Mutis).—The root, blackish externally, is slightly larger than Rio ipecacuanha, and strongly constricted at intervals of an inch or more, the intermediate portions being cylindrical and striated longitudinally. Internally the cortical portion is thick in proportion to the woody column, and presents a horny appearance, and sometimes a purplish tint. A decoction of the root gives evidence of the presence of a reducing sugar,† but no starch. Mr. F. Ransom has detected traces (0.16 per cent.) of emetine, or an alkaloid giving the same reactions. The woody column is dense, and not visibly porous.

**B. Lesser-striated Ipecacuanha** (*Richardsonia species*).—Though resembling the preceding variety externally, this drug presents marked differences internally. The cortical portion is often of a dark-violet tint, and is full of starch, and the woody column is distinctly porous when viewed under an ordinary lens. Professor Planchon refers

it provisionally to the genus *Richardsonia*.† Examined by F. Ransom, it was found to contain 0.27 of emetine.

**C. Undulated Ipecacuanha** (*Richardsonia scabra*).—Externally this root is a greyish-brown colour, and differs from true ipecacuanha in not having raised rings. It is, however, marked with deep constrictions, often on alternate sides, which give the root a somewhat undulated or falsely annulated appearance. In transverse section, it is white and starchy, with sometimes a faint violet tint, and the woody column is yellow and porous. It has been stated to contain emetine, but the statement needs confirmation.

**D. (1) White Ipecacuanha** (*Tonidium Ipecacuanha*).—Characterised by a pale yellowish-brown colour and much-branched character. The woody column is large, yellow, and porous, and the cortical portion is thin, so that the root is more woody in character than *Richardsonia*, but, like this, has transverse constrictions and cracks. It does not contain starch (Moeller, "Lehrbuch für Pharmacognosie," p. 313).

**D. (2)** A root, supposed to be that of *Tonidium Ipecacuanha*, which entered the London market in 1884. Mr. W. Kirkby pointed out that it differed from the root of that plant in having large, wedge-shaped groups of sclerenchymatous cells in the cortical portion, and more or less broad medullary rays in the woody column (*Pharm. Jour.* [3], xvi, p. 126).

**E. False Indian Ipecacuanha.**—This drug differs from true ipecacuanha in colour, being pale reddish-brown, but presents a ringed appearance.

On making a section the root is seen to have a monocotyledonous structure. Its rhizomatous character—for the rings indicate the remains of leaf-bases—its slightly acrid taste, and the small starch grains present in its tissue, show that it probably belongs to the *Araceæ*. It has been referred to *Cryptocorym spiralis* and to *Lagenandra latifolia*, but these statements were not supported by reference to the Kew Herbarium.

In conclusion, Mr. Holmes gave the following key to the histology of ipecacuanhas of commerce, based on the work of Tschirch and Ludtke (*Archiv. der Pharm.*, 1883, page 441).

I. Woody column containing chiefly tracheids, but no vessel.

a. Root-bark containing starch and raphides.

(1) Parenchyma of bark uniform: red ipecacuanha.

(2) Parenchyma of bark forming two layers: Cartagena ipecacuanha.

b. Root-bark containing no starch, but sugar.

(1) Woody centre, not visibly porous: greater striated ipecacuanha.

II. Woody cylinder containing vessels, wood-cells, and medullary rays.

a. Root-bark containing starch.

(1) Medullary rays composed of a single row of cells, woody centre visibly porous: lesser-striated ipecacuanha.

(2) Medullary rays forming two or three rows of cells: undulated ipecacuanha.

b. Root-bark containing inulin.

(1) Medullary rays of a single row of cells, no starch, sphaerulides in the bark: white ipecacuanha (a).

(2) Bark containing stone-cells.

(3) Medullary rays broad: white ipecacuanha (c).

III. Rhizome having a monocotyledonous structure, brown pigment-cells in parenchyma, acicular raphides and starch present: false Indian ipecacuanha.

1237. Owing to the difficulty of detecting spurious ipecacuanhas in powder, the author recommended chemists for the present to make their own powder.

#### DEEMETINISED IPECACUANHA.

By F. C. J. BIRD.

Surgeon-Major Harris, of Simla, in a paper to the *Lancet* (August 30, 1890), first suggested the use of ipecacuanha, deprived of its emetine, as a remedy for dysentery. Its great advantage is that it does not produce the nausea and extreme depression which follows such doses as 30 grains of the natural drug. Since the publication of this paper other medical men have tried the deemetinised ipecacuanha, and opinions are divided as to its value, but it now appears that

\* The name "Poaya veradeira," or "Poaya de botica," or "Poaya picta" is applied to *Cephaelis Ipecacuanha*, Rich.; "Poaya branca" to *Richardsonia scabra*, DC., and *Tonidium Ipecacuanha*, Vent.; "Poaya do campo" to *Borreria Poaya*, DC., and *Polygala Poaya*, Mart.; "Poaya da praia" to *Borreria ferruginea*, DC., *Machoeira brasiliensis*, Willd., and *Tonidium Ipecacuanha*, Vent.; "Poaya do rio" to *Machoeira brasiliensis*, Willd.; "Poaya de hasta comprida" to *Borreria emetica*, Mart. ("Syst. Mat. Med. Bras.," pp. 92-94.)

† *Pharm. Jour.* [3], xi, p. 140.

© *Journ. de Pharm.* xvi. (1872), p. 403; *ibid.* p. 19.

† *Pharm. Jour.* [3], xvii, p. 733.



he drug used has not always been what it should be. Drs. Kanthack and Caddy examined six samples of deëmetinised drug, and found the emetine in it to vary from traces to 1.2 per cent., while extractive-matter was present to the extent of 2.5 to 11.3 per cent. The anti-dysenteric properties were in direct proportion to the amount of extractive present. The best sample was a German one. As to the extraction of the emetine, it is to be noted that Surgeon-Major Warden has suggested alcohol acidulated with acetic acid, and ammoniated alcohol-chloroform has also been suggested as a solvent. Neither of these methods was suitable, and percolation with chloroform alone, in a Dunstan-Short apparatus, was slow and unsatisfactory. This solvent removed 2.86 per cent. of extract, or about a fourth of the whole. Ammoniated chloroform was also used, but this dissolved extractive—viz., .720 gramme, or 3.6 per cent., and the residue yielded to alcohol-percolation 9.01 per cent. of extractive. This process was repeated on 20 grammes of powder, the ammoniated chloroform solution being washed with dilute sulphuric acid before evaporation, so as to fix and remove the alkaloid, then the chloroform was added to the dried marc and powder, the result being a pale-brown powder containing only a trace of emetine, and yielding 10.52 per cent. of its weight to alcohol. A decoction gave a green coloration with ferric chloride, showing the presence of ipecacuanhic acid. The figures obtained with ammoniated chloroform corroborate Kanthack and Caddy's results on the German sample, and Mr. Bird therefore proposed that that is how deëmetinised ipecacuanha should be made—viz., percolate the root in fine powder with ammoniated chloroform until it is completely exhausted of alkaloid, then wash the chloroform with dilute sulphuric acid, return the washed chloroform to the powdered root, mix uniformly, and dry the powdered root at a gentle heat.

The PRESIDENT said they were greatly obliged to Messrs. Holmes and Bird for the papers. With regard to powdered ipecacuanha, he must say that the closing remarks of Mr. Holmes appeared to be a little out of place. (Hear, hear.) If the retail pharmacist was willing to pay a fair price there were wholesale houses who would be able to supply a genuine article. He said he would advise the chemist to powder the drug himself. (Laughter.) Certainly he would have to do it himself, for the modern apprentice would not.

Mr. CONROY was very glad the President had alluded to the concluding part of Mr. Holmes's paper. He thought it very improper and uncalled for. He felt sure that the retail chemist could depend on a good wholesale house for genuine ipecacuanha powder. He believed that Mr. Holmes had stated that the alkaloid emetine—or, rather, the natural emetine—obtained from the real root was not identical with that yielded by the Cartagena root. He thought this would be a difficult point to settle, and would like to know if Mr. Holmes's conclusion was based on proof.

Dr. PAUL had lately had occasion to examine some samples of ipecacuanha to ascertain the amount of so-called emetine in them, and at the outset he was impressed with the defective nature of most of the methods recommended for the determination of emetine, and applied himself to endeavouring to work out a process by which better results could be obtained. He had not proceeded far before it became evident that the alkaloid in ipecacuanha to which the name "emetine" had been given was by no means a simple chemical substance, but consisted of at least two or more distinct alkaloids. Emetine was described as being a perfectly amorphous substance, generally obtained by means of chloroform or ether from Brazilian ipecacuanha. However, he had found that when the alkaloid was sufficiently purified and separated into the two portions of which it consisted, one constituent was distinctly crystalline. He had with him a small quantity of one of these alkaloids, which had a distinct crystalline form. But so long as the amorphous base was present no sign of crystallisation could be got, but only a resinous, translucent mass; a crystalline structure appeared only when the separation had been effected to a considerable extent, which was a tedious matter, the result of continued fractional crystallisation. The base which corresponded most nearly to the so-called emetine, hitherto regarded as the active principle, has been described as yielding amorphous salts. That statement he had found incorrect also. The hydro-

chloride of the amorphous base crystallised well from aqueous solution. He would hand round a sample which had a distinct crystalline form. With regard to the amount of alkaloid in ipecacuanha, the fact that there were two distinct substances made it more difficult to devise any method for determining the value of the drug, until something was known of the therapeutical action of the alkaloids. And chemists were then in a similar position with regard to that determination to the people who waited for the Spanish fleet—they did not know anything about it, and therefore could not say what it was. He hoped to be able shortly to carry out some work on that basis, and get therapeutical examinations made. In this way they would learn which was the efficacious medicinal agent of the drug, and what its characters were. Altogether, the therapeutics of ipecacuanha was very deficient. This was proved by the writings of Indian doctors on the use of deëmetinised ipecacuanha: some thought the latter no better than sawdust, and some regarded it as very efficacious. Mr. Martindale had been good enough to obtain for him (the speaker) a sample of the deëmetinised drug from a German house, said to be the best makers of this article. He found that this substance contained very nearly  $\frac{1}{2}$  per cent. of alkaloid corresponding to emetine. The difference between the alkaloidal value of the root and stem seemed to him to be a result of the relative proportion of woody nucleus and bark. In the stem there was an extremely thin bark and a thick woody axis, while in the true root there was a slender wood column and a very thick bark. Now, he had considerable reason for believing that the site of the alkaloid was entirely in the bark, and consequently it was easy to understand that the woody ipecacuanha would contain very much less alkaloid than the true root. This fact the speaker proceeded to illustrate by means of drawing diagrammatic sections of the root and stem on the blackboard.

Mr. COLLIER had been greatly interested in Mr. Bird's paper on deëmetinised ipecacuanha. At Guy's Hospital patients were occasionally brought in from the tanneries suffering from a disease (anthrax) characterised by the appearance of a pustule. The treatment consisted in excising this pustule and covering the wound with powdered ipecacuanha, the same drug being also given internally. This treatment had so far been very successful. A number of experiments were made in the bacteriological laboratory, and the results very clearly showed that ipecacuanha in powder had a power of arresting the development of the bacillus of anthrax. A solution of the so-called emetine in acetic acid (proved to have of itself no action on the bacillus) was also tried, but had no effect on the growths. The same proved to be the case when tannic acid was tried. There was evidently something in ipecacuanha which had some power in that respect not possessed by emetine, because the root freed from alkaloid had been successfully used in India. The value of the drug in this country was undoubtedly due to the emetine contained in it.

10. Mr. DRUCE spoke of the curious connection between anthrax and dysentery, indicated by the fact that ipecacuanha was a remedy for both. Such instances were constantly turning up.

Mr. BIRD observed that in respect to the active principle of ipecacuanha sufficient attention had not been given, in his opinion, to the resins present to the extent of about 0.5 per cent. He had been rather surprised at the results of Dr. Paul's analysis of the German sample of deëmetinised ipecacuanha: they did not give one a very good idea of the reliability of German preparations. He hoped later to be able to examine the chloroform extract.

Mr. STROTHER, in reference to Mr. Holmes's suggestion anent the powdering of ipecacuanha by the pharmacist himself, told a story of how some years before a sample of powdered ipecacuanha had been offered to the house with which he was connected. The price was such as led them to think the article pure, and its appearance was also very fair. It was found necessary, however, to obtain a sample of the root from which this powder had been prepared, and this turned out to have been completely saturated with seawater and filled with worms. When such things as this were possible, he could not help thinking that Mr. Holmes was perfectly right in his suggestion.

Mr. RANSOM explained to Mr. Conroy that Mr. Holmes had



not said the emetine in Brazilian and Cartagena ipecacuanha was distinct, but the other crystalline alkaloid present in the two roots differed.

An adjournment was then made for

#### LUNCHEON,

which, according to the programme, was to last an hour. It was, however, 2.35 P.M. before the President rose to call for the next paper on the list, and even then the audience did not exceed a score in number. As the afternoon progressed the meeting gradually assumed larger proportions, and the concluding business was got through in the presence of a "full house."

#### THE ESTIMATION OF THE DIASTASIC ACTION ON STARCH.

By D. B. DOTT, F.R.S.E.

This paper, read by Mr. NAYLOR in the absence of the author, set forth in the opening sentences the analytical uses of the action of diastase on starch—viz., the estimation of diastasic power and the estimation of starch. After touching upon the most usual methods of procedure, especially upon the work of C. O'Sullivan, Mr. Dott entered upon a criticism of the iodine method. Two objections to this process presented themselves—viz., first, that it would be difficult to make sure that the starch solution was homogeneous throughout, and so long as any particles remained unconverted by the diastase the blue colour would be developed by iodine; second, that the end-reaction with iodine was not very sharp. On the other hand, continued the author, the reaction of maltose with Fehling's solution was well defined, so that the determination of the quantity of maltose formed would seem the best way of estimating diastase.

For the purpose of elucidating this difference experiments were carried out. The starch was prepared from arrowroot, and the malt-extract solution by dissolving and diluting 5 grammes of extract to 100 c.c.: 5 c.c. of this solution was allowed to react with 400 c.c. of the starch solution for half an hour at 55°–58° C. Then 10 c.c. of strong soda was added, and the whole diluted to 500 c.c. Finally, the amount of this solution required to reduce 10 c.c. of boiling Fehling's solution was noted. The volume required by this method proved to be 21.5 c.c.

In a repetition of this experiment the same result was obtained. A third experiment was arranged in which the starch solution was boiled for forty minutes, instead of being heated sufficiently to gelatinise merely. The amount of extract solution required was 390 c.c. Other experiments were made varying the temperature during the preparation of the starch solution, the quantity of extract used, and also comparing the results with those yielded by the iodine methods. The results showed (a) that when the same starch solution was employed the results obtained by estimating the maltose were constant; (b) that serious variations were caused in the amounts of maltose indicated by the use of starch solution prepared in different ways; (c) that the mass of diastasic matter employed did not appreciably affect the result (within limits, at least) when excess of starch was present; (d) that the iodine method gives practically concurrent results whether the starch had been gelatinised at a higher or a lower temperature (e).

The general conclusions to be drawn were:—(1) That the diastasic value cannot be accurately estimated by the amount of maltose formed unless the starch solution were always prepared in the same way; (2) that great difficulties were found in fixing a standard method for preparing starch solution; (3) that as the method of estimating diastase by testing for unaltered starch and erythrodestrin with iodine was not appreciably affected by the manner in which the starch had been gelatinised, that method must be regarded as the best at present known; (4) that under the action of 1 part of malt extract on 5 parts of arrowroot solution (2 per cent.) at 40° C. there should be no colour with iodine after thirty minutes. In conclusion the author stated that, contrary to the experience of recent writers, he had on several occasions examined liquid extracts which had been kept for a considerable time, and yet indicated the diastasic value of a good malt extract.

247. Mr. GRIERSON had found the paper very interesting. Mr. Dott had apparently changed his mind on the question of the estimation of the diastasic value of

malt extract. At the preceding Conference, in reference to a paper of his own (the speaker's), Mr. Dott had questioned the reliability of the iodine method, and thought the maltose process preferable; now he seemed to have come round to the speaker's view. Mr. Dott gave seventy minutes as the time required for malt extract to convert its own weight of starch. With any good extract ten minutes was quite sufficient. He (Mr. Grierson) had examined several malt extracts in which the process was accomplished in five minutes. He did not believe there was any difficulty in getting a homogeneous starch solution when working with small quantities. It had been a matter of surprise to him that the kind of starch used was not, so far as he remembered, mentioned.

Mr. NAYLOR: The kind of starch was mentioned. It was arrowroot.

Mr. GRIERSON added that that point was, of course, very important. With regard to fluid malt extracts, he agreed with the author that there were many on the market which were very active.

The PRESIDENT regretted that Mr. Dott was not present to take up the points raised. No doubt he would reply to Mr. Grierson's comments when the paper and discussion appeared in type.

#### THE PURITY OF LITHIUM SALTS.

By H. BOWDEN.

##### I.—On Lithium Carbonate.

250. The method of estimation in general adhered to was as follows:—

To a solution of the salt about eight times its weight of pure crystallised sodium phosphate and sufficient caustic soda solution to render the whole decidedly alkaline were added, and the whole evaporated to dryness on a water-bath. Sufficient water was then added to dissolve the soluble salts, and the whole gently heated and filtered after allowing to stand for twelve hours. The precipitate was washed with a mixture of equal volumes of ammonia and water, and the filtrate and first two washings evaporated to dryness, and treated with water as before; any further precipitate so obtained was added to the bulk. After washing well with ammonia and water, the precipitate was dried at 100° till constant, and was then  $\text{Li}_2\text{PO}_4$ . This method is based in general on those proposed by Mayer and by Merling.

The amount of carbon dioxide was determined by the loss of weight of the samples when treated with an acid. The apparatus used was one made by Mr. Hoseason, of Owens College, and described in his paper.

Owing to lack of time, only three samples were determined.

The results showed the following percentages of Li and  $\text{CO}_2$ :—(a) 18.89 and 59.33, (b) 18.87 and 59.14, (c) 18.59 and 59.33. Since the calculated figures for  $\text{Li}_2\text{CO}_3$  were 18.93 and 59.45 respectively, these data indicated that (a) contained 99.73 of  $\text{Li}_2\text{CO}_3$ , (b) 99.68, and (c) 98.2. The samples were got into solution by the aid of  $\text{HCl}$  or  $\text{H}_2\text{SO}_4$ . No calcium was detected.

##### II.—On Lithium Citrate.

In this salt the lithium could be determined by simply dissolving in water and applying the method described above.

Only two samples were analysed.

Sample (a) showed 7.36 per cent. of Li, and (b) 7.15 per cent. The calculated percentage being 7.41, the first sample contained 99.32 per cent., and the second 96.49 per cent. of  $\text{Li}_3\text{C}_6\text{H}_5\text{O}_7 \cdot 4\text{H}_2\text{O}$ . In conclusion, the author expressed thanks to Mr. Hoseason for several of the specimens analysed.

#### NOTE ON LITHIUM NITRATE.

By D. B. DOTT, F.R.S.E.

In the new edition of Watts's "Dictionary" the formula for hydrated lithium nitrate is given as  $\text{LiNO}_3 \cdot 5\text{H}_2\text{O}$ , and the salt is said to be obtained by crystallisation below 10° C. on the authority of Teoost. Dittmar, in his "Chemical Analysis," also states that the hydrated salt crystallises below 10° C., and is a very deliquescent salt, having the formula  $\text{LiNO}_3 \cdot 2\frac{1}{2}\text{H}_2\text{O}$ . The author has found that the hydrated nitrate crystallises readily, even at 18° C., in long prismatic crystals. These he removed from the mother-liquor and dried by pressure in thick blotting-paper, and finally in an air-



bath at 110° C.: 1.264 gramme lost .574 gramme, = 45.4 per cent. Of a second quantity of crystals, separately dried, .779 gramme lost .3475 gramme, = 44.4 per cent.

$\text{LiNO}_3 \cdot 3\text{H}_2\text{O}$  requires 43.9 per cent.  $\text{H}_2\text{O}$ .

$(\text{LiNO}_3)_2 \cdot 5\text{H}_2\text{O}$  requires 39.47 per cent.  $\text{H}_2\text{O}$ .

These results are distinctly in favour of the formula  $\text{LiNO}_3 \cdot 3\text{H}_2\text{O}$ . The formula given in Watts's "Dictionary" is evidently an error, the formula  $(\text{LiNO}_3)_2 \cdot 5\text{H}_2\text{O}$  being intended, which is the same as that given by Dittmar, but more properly stated. Even allowing for the difficulty of obtaining a deliquescent salt free from adherent moisture,

the fact of crystallised lithium nitrate being a simple trihydrate appears most probable.

The PRESIDENT referring especially to the first paper, said no doubt the samples examined were chemically pure. The slight discrepancy noted would be due to water of crystallisation, of which the author did not seem to have taken any account.

Mr. SYMONS was quite able to confirm the experience of the authors and the President's observations. He thought it was quite time the subject of the purity of lithium salts was removed from the blue list. He himself examined every year some scores of samples of lithium carbonate drawn from hundredweight lots, and almost invariably they came out at 99 per cent. The analyses before them also indicated that the few samples examined were pure.

#### AFRICAN COPAIBA.

By JOHN C. UMNEY, F.C.S.

3.3. The author has already called attention to the principal general characters of this oleo-resin as imported from the Niger basin in a preliminary note (*Pharm. Journ.* [3], xxii., p. 449), showing that it is slightly fluorescent, possesses an aromatic, piperaceous smell, and has a

were dried over chloride of calcium and fractionally distilled, with the following result:—

Below 230° C.	..	..	..	..	NB
260°-235° C.	..	..	..	..	62.3 grammes
235°-267° C.	..	..	..	..	9.4 ..
267°-270° C.	..	..	..	..	7.4 ..
270°-273° C.	..	..	..	..	9 ..
R. blue	..	..	..	..	1.9 ..

A crystalline hydrochloride could not be obtained.

The dry oil yielded on fractionation over metallic sodium a blue oil boiling at 260°, and agreeing with that obtained by Brix (*Jahresbericht*, 1881, p. 1028) from Maracaiibo copaiba.

Distilled with bichromate of potash and sulphuric acid a bluish-green oil is obtained at 265°, the thermometer falling rapidly.

The original oil reduces a solution of gold chloride in chloroform containing 1 per cent. of absolute alcohol, and the "iodine absorption" in sixteen hours is 251.8.

The fraction boiling at 264° C. was heated for twenty-four hours with glacial acetic acid, sulphuric acid, and water, and the dark resulting liquid subsequently distilled in a current of steam. From no fraction, however, on cooling could a crystalline hydrate be obtained, although South American copaiba oil yielded a small quantity of a crystalline hydrate agreeing in properties with the sesquiterpene hydrate of Wallach.

Mr. E. Hurry Fenwick, F.R.C.S., has tested the oil therapeutically, and reports that it "possesses undoubted therapeutic powers, all the patients, with one exception, acknowledging much benefit from its exhibition. I am told by patients that it is less nauseous to take, repeats less, but is less potent in its effects than the copaiba oil at present in the market (South American). I have used it in prostatic inflammation, fresh and chronic urethritis, stricture, and pyelitis."

The crystalline substance deposited from the crude oleo-resin was on recrystallisation from petroleum ether found to be colourless, distinctly acid to litmus, electrical by fric-

#### COMPARISON OF ESSENTIAL OILS.

Properties and Tests	African	Maracaiibo	Para
Percentage of oil .. .. .	39 per cent.	42 per cent.	A. 80.2 per cent. B. 64.3 per cent.
Specific gravity .. .. .	0.9180	0.9052	0.9060
Rotatory power .. .. .	+ 20° 42'	- 34° 18'	- 28° 55'
Solubility at 15° in absolute alcohol .. .. .	Not soluble 1 in 50	1 in 1	1 in 1
In petroleum ether .. .. .	1 in 1	1 in 1	1 in 1
" ether 720 .. .. .	1 in 3	1 in 3	1 in 24
" " 735 .. .. .	1 in 3	1 in 3	1 in 24
" rectified spirit .. .. .	Not soluble 1 in 50	1 in 19	Not soluble 1 in 20
" glacial acetic acid .. .. .	1 in 7	1 in 5	1 in 34
Range of boiling-point .. .. .	260°-273° C.	245°-255° C.	252°-260° C.
Behaviour to dry hydrochloric acid gas in freezing-mixture ..	Becomes wine-red, turbid, deposits after a time, but no crystals	Becomes wine-red, turbid, deposits after a time, but no crystals	Becomes wine-red, turbid, deposits after a time, but no crystals
Digested for six hours with metallic sodium and fractionated ..	Blue oil; permanent	Blue fluorescence only	262° C., falling to 230° C., green oil
Behaviour to chloroformic gold-chloride solution with 1 per cent. absolute alcohol .. .. .	Reduces immediately; deposits metallic gold	Becomes green; no deposit after one hour	Becomes green only; no deposit after one hour
Iodine absorption in sixteen hours ..	251.8	257.9	233
Distilled with bichromate of potash and sulphuric acid ..	Bluish-green (265°-267° C.)	Bluish oil, rapidly becoming brown (257° C. falling)	Blue colour fades on standing one hour exposed to air (252° C. falling)

specific gravity of 0.985 to 1.000 at 15° C. It deposits crystals on standing, and yields on distillation with steam about 40 per cent. of volatile oil. The oleo-resin does not lose its fluidity when heated in a sealed tube to 220° C.—a property which distinguishes it from Gurjun balsam. The present paper deals more fully with the volatile oil and crystalline and other resins.

The average yield of volatile oil obtained by distillation with steam was 39 per cent. The oil was of a pale yellow colour, sp. gr. .9185 at 16° C., and rotation + 20° 42' with a tube 20 cm. long at 16° C. It is soluble in its own weight of petroleum ether, in 3 parts of ether, and 7 of glacial acetic acid, but is not completely soluble in 50 parts of rectified spirit or absolute alcohol. One hundred grammes of the oil

tion, and to melt at 124° C. Lead and silver salts failed to crystallise, but in properties they resembled the salts of the oxyeopaivic acid.

The residue left after the distillation of the essential oil amounted to nearly 60 per cent., and on boiling with caustic soda and water 13 per cent. was not saponified, whilst of a sample of resin obtained from a South American oleo-resin only 3 per cent. was unsaponifiable. The solution produced a small quantity of needle-shaped crystals, which were proved to be the sodium salt of a resin differing in several respects from that mentioned above. It was much less strongly acid, and melted somewhat indefinitely at about 150° C. The unsaponifiable portion was separated into two distinct resins.



From these experiments it will be seen that in many respects African copaiba corresponds with that imported from South America, and points to the possibility of its being derived from one of the *Copaifera* which are known to exist in tropical Africa.

The PRESIDENT asked Mr. Druce if he could add anything to the subject.

Mr. DRUCE: No, Mr. President; but one would like to hear something more about the botanical source.

The PRESIDENT: I did not know these resins were obtained from Central Africa.

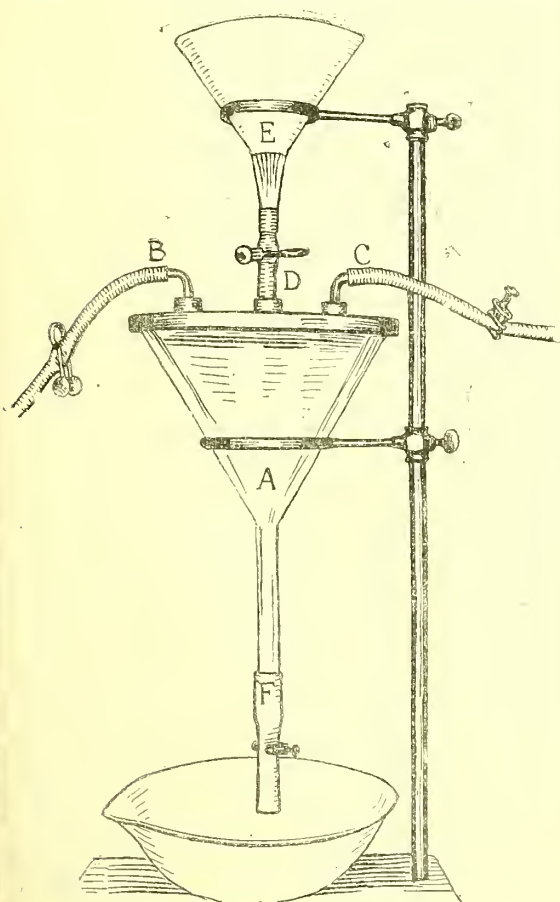
Mr. DRUCE: Tropical America is of course the great home, but I fancy that they have been found in Africa also.

Mr. HILL had been rather interested in the crystals referred to, because, not long before, a chemist who was trying to make a soluble copaiba mixture had brought him a small bottle of acicular crystals which had separated from about 40 oz. of the liquid he had been preparing. He (Mr. Hill) suggested that they were potassium salts of some resin, and the statements in the present communication probably bore out that hypothesis.

#### A WASH-FUNNEL FOR OXIDISABLE PRECIPITATES.

By J. A. FORRET.

In the *Pharmaceutical Journal* of September 19, 1891, I described a wash-bottle for washing readily-oxidisable precipitates, which piece of apparatus answers perfectly for precipitating oxidisable salts produced by double decomposition. I required, however, a more rapid and thorough elimination of the soluble salt than is obtainable by that



means, and have found the funnel-arrangement now described suitable for that purpose.

The funnel A is fitted with a perforated metal cone, and covered with a circular piece of wood carrying three glass tubes (B, C, and D), to which are attached indiarubber tubes

furnished with spring clips. The wooden cover has also a glazed aperture as large as the diameter of the funnel will admit, to enable the operator to see the contents of the funnel. To the stem of A is fitted a piece of indiarubber tubing (F), into the other end of which a short glass tube is inserted; underneath is placed a beaker or basin of convenient size containing water, under the surface of which the glass tube dips. Into the tube D the stem of a second funnel (H) is inserted: both funnels are conveniently supported in the rings of a retort-stand.

The apparatus is used in the following manner:—A piece of fine calico is placed inside the metal cone, and the wooden top cemented to the funnel A by means of almond meal made into a stiff lute with water to which a little glycerine has been added. The tube D is closed, and a current of coal-gas, carbonic anhydride, or other suitable gas is passed through the funnel by the tubes B and C, to displace atmospheric air. The precipitate to be treated is poured into the funnel E, and by means of the clip at D rapidly transferred to the funnel A. When the bulk of the water has passed through the funnel, the tube F is closed by a clip, and the funnel A filled with boiled water through the funnel E. After the lapse of a few minutes the water is run off and the operation repeated till the precipitate is practically free from soluble salt. The tube C is now closed and the precipitate allowed to drain.

It is desirable to maintain a gentle current of gas while the washing is being carried through; and when the tube D is closed, the resulting pressure guards against the entrance of atmospheric air through any flaw in the connections.

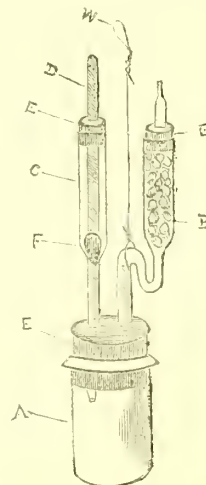
Ferrous carbonate is the only salt I have had occasion to treat in this way, the wash-bottle referred to being used to precipitate the carbonate. With some slight modification of the funnel A, however, I believe the above arrangement could be conveniently used both for precipitating and washing such unstable salts as ferrous carbonate, ferrous phosphate, &c.

#### A CHEAP AND USEFUL FORM OF APPARATUS FOR THE GRAVIMETRIC DETERMINATION OF $\text{CO}_2$ .

By J. H. ROSEASON.

It must have occurred to all who have had occasion to employ any of the usual contrivances for the gravimetric estimation of  $\text{CO}_2$  that the proportionate weight of instrument to substance is much too large for very accurate determination, especially when the quantity of  $\text{CO}_2$  present is in small ratio. Most of these appliances are extremely fragile, and, moreover, expensive, disadvantages which do not apply to the one which I describe and figure.

To Make the Apparatus.—Draw off  $2\frac{1}{2}$  or 3 inches from the top of a 4-inch or 1-inch diameter test-tube, and whilst hot round the bottom by gently blowing into it, A. Fit with a perfectly sound cork, B, perforated by two holes of adequate size, through which the tubes B and C (to be subsequently described) should pass, air-tight. The tubes B and C are made by slightly drawing out at the centre 4 inches of glass tubing ( $\frac{1}{2}$ -inch diameter), then cutting exactly in two: join each of these to tubing having about one-third of its calibre; bend one of them S shape, as shown in n. A small plug of absorbent cotton is placed at the bottom of B, which is then nearly filled with granular calcium chloride, and finally closed by means of a perforated cork, D, through which passes a small piece of tubing, drawn out to a capillary. B constitutes the drying-tube. The tube C, when finished, is not unlike a syringe in appearance. It is fitted with a perforated cork, E, through which passes the piston D. This should work loosely in E. The piston D is made from some of the thin tubing by drawing to a point, then sealing both ends. On the pointed end is placed a piece of indiarubber tubing, F. By heating the rod before attaching the rubber, the latter will be cemented to the former. A perfect valve is thus formed when D is firmly pressed into C. A copper wire, W, is useful to hang the apparatus on the hook of the balance.





To Use the Apparatus.—Slide up the cork *E''*, press it well home, and fill two-thirds of *c* with 40 to 50 per cent.  $H_2SO_4$ ; replace *E''*; then proceed as with the other instruments.

In bringing my adaptation of the same old principle before you, I may state that its special advantages are:—It is light, weighing from 5 to 6 grammes, whereas the instruments of Schrotter, Rohrbach, Rose, and Geissler average from 20 to 30 grammes; it is inexpensive and simple, costing at a maximum 2*d.*, a little time and manipulation; the aforementioned cost from 2*s.* 6*d.* to 4*s.* 6*d.* each. It is scarcely necessary for me to point out the advantages accruing to the student who endeavours to make his own apparatus, and I think the youth who does so gets a better grasp of the principles underlying his work—a point which I am afraid is sadly overlooked in the teaching of chemistry, and also other subjects.

Personally, I have found this arrangement to be cleanly and accurate.

The PRESIDENT remarked that these papers would be of very little interest without the apparatus before them; illustrations had been sent with the communications, but these were in the hands of the engravers. The papers were, therefore, taken as read.

### CONCLUDING BUSINESS.

#### ELECTION OF FORMULARY COMMITTEE.

3.10. Mr. J. GOWAN CROSS proposed "That the Formulary Committee of the British Pharmaceutical Conference be, and they are hereby, re-appointed." (Applause.) The names were as follows:—

W. Martindale, Chairman	N. H. Martin
W. A. H. Naylor, Secretary	T. Ransom
A. C. Abraham	R. Reynolds
T. Greenish	G. Symes
T. B. Groves	R. Wright
T. Mabea	

Mr. COLLIER seconded the motion, and at the same time said how highly the work of the committee was appreciated at Guy's Hospital, London.

#### PLACE OF MEETING, 1894.

Mr. DRUCE then rose to offer an invitation to the Conference to visit Oxford next year. He said they would quite understand the position he was placed in after the extreme hospitality and kindness they had received from everyone in Nottingham connected with pharmacy. Oxford was a small town and a poor town. Pharmacists there, he was going to say, were smaller and poorer. (Laughter.) It was suggested, as the Conference had always been at the same town in the same year as the British Association, that Oxford ought to do something in the way of inviting the Conference to hold its meeting there. But if they came to Oxford they must pay their own expenses. (Laughter.) He did not think they could ask their fellow-tradesmen there to dip very deeply into their pockets, but he thought if the Conference did favour Oxford with a visit, there was enough in Oxford to interest them to do away with an expensive journey outside the town. There were colleges, gardens, and museums to keep them interested for three days, and whatever it was possible for him to do personally should be done for their welfare.

Mr. CONROY asked if it was the intention to meet at the same time as the British Association.

Mr. BUTLER (Leicester) thought it would be a very great mistake to meet at same time as the British Association, and he protested against the Conference being "attached to the tail of the British Association." The great success of the present meeting was evidence of the fact that it was not necessary to the well-being of the Conference that it should meet at the same time as the Association. (Applause.)

Mr. DRUCE said it would be impossible for Oxford to entertain the idea of a meeting at the same time as the Association.

Mr. PAYNE followed in the line of Mr. Butler's argument, and thought it was definitely settled last year that they should not again meet at the same time and place as the British Association. He believed the accommodation at

Oxford was poor—(laughter)—he should say limited—and they should certainly avoid meeting at the same time.

Mr. DRUCE said that, owing to the arrangements made in connection with the British Association and the University Extension movement, he thought somewhere about the end of August would be a good time for the Conference to meet.

Mr. WELLS, jun. (Dublin), asked if they had an invitation from any other place. He thought they ought to be able to pay their way, and not let their friends entertain them if they did not wish to.

The PRESIDENT said they had no other invitation, and it would be a little awkward to have one after that meeting. He thought they must decide whether they would go to Oxford next year or not.

Mr. KEMP (Horncastle) thought it advisable to authorise the Executive Committee to settle the matter, and Mr. KEMP of Manchester also supported this view.

The PRESIDENT, however, said that the Executive would represent only three or four, and he thought the question could be better settled on the spot.

Mr. GERRARD supported the President's view. He felt they could not do otherwise than go to Oxford. They did not wish their Oxford brotherhood to put their hands into their pockets to entertain them. (Loud applause.) He liked it to be known that the Conference would go anywhere where they were invited, and he hoped they would accept Oxford for the place of meeting next year. (Applause.)

Dr. SYMES thought the end of August would be a suitable time, and he would move that—"This Conference meet in Oxford next year, the date to be exactly fixed by the committee."

Mr. CONROY seconded the motion, Mr. GROSE supported it, and it was agreed to.

Mr. DRUCE said that having made the best of a bad bargain—(laughter)—perhaps things might turn out better than they looked. They must, however, be prepared to be received at the station by the pharmacists of the town armed with all the scientific implements of warfare, and if they escaped—well, they would see Oxford. (Laughter.)

#### THE BELL AND HILLS FUND.—PRESENTATION.

3.30. The PRESIDENT, rising again, said that on behalf of the Executive and of the Conference he had great pleasure in offering to the chemists of Nottingham the books from the Bell and Hills Fund. It was a small memento of the kindly way they had received the members of the Conference during their visit. (Loud applause.) He felt it was a pleasant way of leaving a town. It was a mere memento, but he trusted it would be received by the pharmacists of Nottingham generally as a reminder of the pleasant visit which had been spent amongst them. He asked Mr. Fitzhugh to accept the volumes. He might add that the "Pharmacographia" would be out of print in process of time, and therefore Daniel Hanbury's gift would be of increasing value. (Applause.)

Mr. FITZHUGH said it afforded him great pleasure, as the representative of the local Association, to receive those books from the Bell and Hills Fund. If it were necessary for them at any time to look at the books to remind them of the pleasant gathering which they had had, he was quite sure they would conduce to the pleasure which would be derived from the memory of the happiness which they had felt in seeing them here. He thanked the members of the Conference sincerely for their presence on behalf of the Association, and if they had only enjoyed their visit, as much as the local brethren in the craft had enjoyed receiving them, he was quite sure they would never look back with regret to their visit to Nottingham. It was a pleasure to him to say that nearly every chemist in the town responded to the invitation to receive the Conference this year. He had not entered into the discussion about the place of meeting next year, but he would advise them not to have it at the same time and place as the British Association. Thanks were certainly due to their two indefatigable Secretaries, Mr. Bolton and Mr. Gill, and he was happy to say also that all the members of the committee had worked most assiduously and agreeably. He hoped the members of the Conference when they went away would have enjoyed themselves and think the chemists of the town had held out the right hand of fellowship to them, and



would be thoroughly satisfied with their visit. (Loud applause.)

#### ELECTION OF OFFICERS FOR 1893-4.

The following gentlemen were appointed as officers for the ensuing year, their names being read without remark as :—

##### *President.*

N. H. Martin, Newcastle-on-Tyne.

##### *Vice-Presidents.*

M. Carteghe, London.  
R. H. Davies, London

W. Hayes, Dublin  
G. T. Prior, Oxford

##### *Treasurer.*

John Moss.

##### *Honorary General Secretaries.*

W. A. H. Naylor, London.  
F. Ransom, Hitchin.

##### *Honorary Local Secretary.*

H. Matthews, Oxford.

##### *Other Members of Executive Committee.*

Peter Bon, Edinburgh	E. M. Holmes, F.L.S., London
A. W. Gerrard, F.C.S., London	J. C. C. Payne, Belfast
W. Gill, Nottingham	E. H. Farr, Uckfield
G. C. Druce, Oxford	R. Wright, Buxton
J. Hodgkin, F.L.C., London	

##### *Auditors.*

J. Wilford, Nottingham.  
— Clayton, Oxford.

##### *Editor of the "Year-book."*

Louis Siebold, F.L.C., F.C.S.

#### AN AUSTRALIAN VISITOR.

Mr. Reeve, of Melbourne, was then asked by the President to say a few words to the meeting. Mr. REEVE thanked the Conference for the invitation extended to him, and congratulated the President on the success of its meeting. Over—or rather "under"—there, in Australia—(laughter)—they took a deep interest in the Conference. They had watched its progress for many years. Most of them were subscribers, and they read its excellent literature with great pleasure. Through watching the progress of pharmacy in Britain they had brought about an excellent state of pharmacy in Victoria, and they owed a great deal of that to British pharmacists. It was not their proud distinction to be able to boast such great and illustrious names in the pharmaceutical arena, but still they hoped to do so some day. Perhaps while he was speaking there the budding Redwood was already born. (Applause and laughter.) The Conference to him personally had been a feast of reason and a flow of soul. The feast of reason was just concluding, but the flow of soul would still go on for the next six hours—(loud laughter)—so he would not detain them beyond again expressing his thanks on behalf of the chemists of Victoria for their kindness in inviting him to their Conference. (Loud applause.)

#### NEW MEMBERS.

The following members were then nominated for election to membership of the Conference:—Chas. Tyrer, London; A. J. Symons, New Barnet; Mr. Mager, South Africa; Mr. Davidge, London; H. Conyngham, Dublin; W. Sharp, Newcastle; W. H. Kemp, Horncastle; E. H. Perry, London; E. Widdowson, Nottingham.

#### VOTES OF THANKS.

3.50. Mr. J. R. HILL said that he had the following resolution put into his hands:—"That the best thanks of the meeting be accorded to his Worship the Mayor for the use of the Borough Council-chamber and the Castle Museum during the visit of the Conference." He was sure that very few words were needed to commend that resolution to the unanimous and cordial approval of the meeting. He could not help making the general observation that it seemed to him that all the arrangements and all the details of that Conference meeting had been thought out

beforehand in a singularly perfect way, and that every probable necessity had been amply provided for. He thought they would agree with him that that remark applied particularly to the use of the Council-chamber and the Castle Museum. He did not remember being at a more enjoyable function than that which was held at the Castle Museum (Applause.)

Mr. BURDEN remarked that he was very happy to follow Mr. Hill in this matter, and to confirm all that he had so well said. (Hear, hear.)

The motion was most heartily agreed to.

Councillor FITZHUGH, who was very cordially received on rising to respond on behalf of the Mayor, said that Mr. Brownword had been pleased to do all he could to contribute to their enjoyment. (Applause.)

Mr. LAIDLAW EWING said that he had to propose a motion which he was sure would meet with their most enthusiastic approbation. It was, "That the cordial thanks of the non-resident members be given to the local committee, Mr. Fitzhugh (the Chairman), Mr. Bolton (the Secretary), and Mr. Gill (the Assistant Secretary)—(applause) for their kind and most successful efforts in organising that meeting." He thought they would agree with him that their excellent and most-esteemed friend, Mr. Fitzhugh, had received them with very great "kindness." He did not think "kindness" was strong enough to express it. He should say, "with the utmost heartiness." (Hear, hear.) They were deeply indebted to him and his excellent wife, and he thought he might say that they appreciated his position in that town as one who was not only a popular pharmacist, but one who had occupied a proud position. (Hear, hear.) Anyone who filled the office of local secretary must possess business tact, foresight, and energy, and he thought they would agree with him that those qualifications were united in a supreme degree in Mr. Bolton. (Applause.) They had to thank also Mr. Gill for his unvarying courtesy and kindness. They had received unbounded hospitality, and he was sure he could take it upon himself to say that they would go away from Nottingham deeply filled with a sense of gratitude, and that they would not readily forget their visit to the town. (Applause.)

Mr. CONROY stated that he rose to second the vote of thanks. He was now getting an old member of the Conference, and he assured them that never had the members been treated so kindly. The hospitality accorded to them had never been excelled, and scarcely equalled. (Applause.)

Mr. BOLTON, in response, said that he thanked them for what he believed to be a sincere expression of their thanks for what had been done by the committee with whom he had had the pleasure to work. The committee had been greatly favoured by the chairmanship of Mr. Fitzhugh, and, with all due respect to the members, he would say that he had had the pleasure of working under one of the finest presidents they had got in England. (Applause.) He was deeply thankful they had had such splendid weather. (Applause.)

Mr. GILL also briefly returned thanks.

Mr. PAYNE then moved, "That the hearty thanks of the Conference be accorded to the President for the able and courteous manner in which he has conducted the business of the meeting." (Applause.) He was sure they would agree with him that Mr. Corder was a most genial man, and that whilst he faithfully examined the students, he would do nothing to pluck them unnecessarily. Many of them in their younger days thought botany was quite unnecessary for a chemist, but they now recognised that it was a necessity for every well-educated chemist. (Hear, hear.)

Mr. GERRARD, in seconding the motion, said that he had long been brought into contact with Mr. Corder, and in his opinion he was a typical pharmacist. (Hear, hear.) He had done his work in the chair with zeal and impartiality, and on behalf of the Conference he asked them with very much pleasure to give him a very hearty vote of thanks. (Applause.)

The PRESIDENT, in reply, said that he thanked them from his heart for the kindness and attention they had shown towards him.

#### THE CHICAGO CONFERENCE.

The PRESIDENT said that he had received the following cablegram from Chicago:—"American Pharmaceutical Society sends heartiest greetings." (Applause.)

This concluded the business.



## CONFERENCE EXTRAS.

## AMONGST THOSE WHO WERE THERE.

The following ladies and gentlemen signed the attendance book, but this list does not include all who were present:—

Allen, A. H., Sheffield  
 Arkinstall, William, London  
 Arkinstall, Mrs., London  
 Bain, J., Liverpool  
 Baker, T. B., Newcastle-on-Tyne  
 Barton, H., St. Ives  
 Bates, James, Wellington  
 Bateson, Thomas, Kendal  
 Baxter, George, Chester  
 Beggs, G. D., Dalkey  
 Beggs, Mrs., Dalkey  
 Bailly, A. E., Nottingham  
 Bell, C. B., Hull  
 Bell, E. W., Spalding  
 Bengier, F. Baden, Manchester  
 Bennett, George, Southwell  
 Beverley, R. H.  
 Birkbeck, J. T., Lincoln  
 Bolton, C. A., Leicester  
 Bostock, W., Ashton  
 Brenbridge, R., London  
 Brownswold, A. (Mayor), Nottingham  
 Burden, E. M., London  
 Burford, S. F., Leicester  
 Butler, E. H., Leicester  
 Cartwell, E., Reading  
 Carlow, R. S., Arbroath  
 Chaplin, E. M., Wakefield  
 Cholerton, A. F., Leicester  
 Clark, Goddard, London  
 Clark, J. W., Leicester  
 Clarke, F., London  
 Coates, F., Nottingham  
 Coleman, Alfred, Cardiff  
 Collier, H., London  
 Collier, Mrs., London  
 Collier, Miss, London  
 Conroy, M., Liverpool  
 Conyngham, Henry, Dublin  
 Cooper, F. R., Manchester  
 Cooper, Mrs., Manchester  
 Corder, Margaret M., Norwich  
 Corler, O., Norwich  
 Cross, W. G., Shrewsbury  
 Croydon, E. H., Newcastle (Staffs)  
 Currie, W. L., Glasgow  
 Davies, John, Swansea  
 Davies, J. J., Swansea  
 Dennis, Mrs.  
 Dewar, F. L., Edinburgh  
 Dobson, A., Edinburgh  
 Druee, G. C., Oxford  
 Dyson, W. B., London  
 Dyson, Mrs., London  
 Elborne, W., Cambridge  
 Ewing, J. L., Edinburgh  
 Farr, E. H., Uckfield  
 Fitzhugh, M. L., Nottingham  
 Fitzhugh, R., Nottingham  
 Foggion, Geo., Bedlington  
 Forbes, J. W., Bolton  
 Gerrard, A. W., London  
 Gibbs, R. D., Birmingham  
 Gibson, W. H., Brighton  
 Gill, W., Nottingham  
 Gill, Mrs., Nottingham  
 Greaves, W., Ironville  
 Grierson, G. A., York  
 Grose, H. W., Swansea  
 Hall, H. E., London  
 Harcastle, S. B., Brighton  
 Harrison, E. F., London  
 Hayles, B. H., New Barnet  
 Hefford, Charles, Derby  
 Hill, J. R., Edinburgh

Holding, Mrs., London  
 Holgate, S. V., Nottingham  
 Holgate, Mrs., Nottingham  
 Hopkin, W. K., London  
 Hughes, J., Swansea  
 Humphrey, John, London  
 Hurl, W., Uttoxeter  
 Hutton, H., Leamington  
 Jack, James, Arbroath  
 Johnson, Thomas, Wigan  
 Johnston, C. A., Manchester  
 Johnston, John, Aberdeen  
 Kay, J. P., Aberdeen  
 Kemp, Harry, Manchester  
 Kemp, H. W., Hornscliffe  
 Kerr, C., Dundee  
 Lake, J. Hinton, Exeter  
 Leigh, Marshall, Brighton  
 Linford, J. S., Hull  
 Lumby, Fred., Nottingham  
 Laxton, F., Exeter  
 MacEwan, Peter, London  
 McLaren, David, Edinburgh  
 Mager, W., Queenstown, S.A.  
 Marfield, H. J., Nottingham  
 Marshall, J., Shemeld  
 Matthews, J. H., London  
 Middleton, A., Nottingham  
 Minacley, Miss, Bolton  
 Naylor, W. A. H., London  
 Newsholme, G. T. W., Sheffield  
 Nightingale, J. C., London  
 Otley, Thomas, Burton-on-Trent  
 Ough, Lewis, Leicester  
 Parry, E. J., London  
 Payne, J. C. Charles, Belfast  
 Pegg, A. A., Mansfield  
 Perry, G. E., Birmingham  
 Phillips, A. J., London  
 Pidd, A. J., Manchester  
 Prosser, F. H., Birmingham  
 Rait, R. A., Purdie  
 Ransom, F., Hitchin  
 Reeve, Alfred, Melbourne  
 Reynolds, R. J., and Mrs., Manchester  
 Richardson, W., Edinburgh  
 Rogerson, W. J., London  
 Savage, W. W., Brighton  
 Scate, S., Manchester  
 Sellars, Mrs., Whitefield  
 Sergeant, F. Ross, Nottingham  
 Shakespear, W., Leicester  
 Sharp, W., Newcastle  
 Shepperley, G., Nottingham  
 Simpson, H. D., Louth  
 Sinclair, N. C., Nottingham  
 Smith, J. T., Radcliffe  
 Smith, Mrs., Radcliffe  
 Stafford, W., Gloucester  
 Strother, C. J., London  
 Symes, C., Liverpool  
 Symons, W. H., London  
 Tanner, A. E., London  
 Taylor, G. S., London  
 Thompson, C., Birmingham  
 Thompson, Mrs. C., Birmingham  
 Towersey, A., Clifton  
 Twemlow, Richard, Manchester  
 Voez, W. G., Dudley  
 Wand, Joseph, Gloucester  
 Want, W. P., London  
 Watt, G. A., West Hartlepool  
 Wilford, Anne, Nottingham  
 Wilford, J., Nottingham  
 Wilford, Mary, Nottingham  
 Wellings, W. J., Liverpool

White, E., London  
 Whysall, W., Grantham  
 Wildowson, R., Nottingham  
 Wildowson, W., Nottingham  
 Williams, W. G., Conway

Wilson, Thomas, Nottingham  
 Wrenn, W. A., Taunton  
 Wright, R., Buxton  
 Wright, T. R., London  
 Young, R. F., New Barnet

## ARRANGEMENTS FOR LADY VISITORS.

It was scarcely to be expected that even pharmacists' wives should take much interest in the business part of the Conference proceedings, and consequently arrangements were made for entertaining them while the reading and discussion of papers was going forward on Tuesday and Wednesday.

The Mayor's welcome to the Conference and the Presidential address, being of more general interest, were placed on the programme for the ladies as available means of passing away Tuesday morning, while the carrying-out of the special arrangements began in the afternoon of the same day with a visit to the Guildhall, under the guidance of Mr. Councillor Fitzhugh, J.P. The Municipal buildings and treasures having been viewed in this way, the gentlemen were joined at the Great Northern station for the combined excursion to Redmile and Belvoir.

On Wednesday a considerable portion of the day was devoted to the inspection of typical factories in which the most interesting (to the feminine mind) of the staple industries of Nottingham is carried on. About the same time as the business of the Conference was resumed in the morning, carriages were in waiting at the George Hotel, which conveyed the ladies to the Arboretum and Church cemetery. Messrs. H. Mallet & Co.'s lace-factory was also "done" before lunch, and the study of the subject resumed afterwards at Messrs. T. Adams & Co.'s, and the Midland Lace Companies' warehouses. Towards the close of the afternoon, when the business in the Borough Council-chamber neared its end, some of the ladies looked in to add zest to the votes of thanks by their presence and sympathy; and in the evening, while the gentlemen were engaged at the "smoker," the ladies were entertained at a drawing-room, at the Exchange Hall, by Mrs. Councillor Fitzhugh.

For the convenience of ladies, the suite of private rooms in the Exchange, including the Mayor's room, were placed at their disposal. The largest of the rooms was furnished, without any effort at luxury, in extremely tasteful fashion as a drawing-room, and the visitors found the whole arrangements to be highly conducive to their comfort and convenience.

## TUESDAY'S EXCURSION.

After the conclusion of business for the day, the party re-assembled at the Great Northern Station, where a special train was waiting to convey them to Redmile, distant about ten miles. At Redmile they were met by a number of vehicles of various kinds and driven to Belvoir Castle, the seat of the Duke of Rutland. Here tea was provided in a marquee attached to the Peacock Arms, and after tea the company were admitted in parties of fifty at a time to view the interior of the Castle. The large collection of paintings, many of them "old masters," was much admired. Other objects of special interest were pointed out to the company, including a chair made from the tree near which Wellington stood at the battle of Waterloo. After viewing the Castle, the party rambled about through the beautiful and extensive grounds, visiting the Mausoleum, where members of the family are buried, and where some marble carving was much admired. After two hours had been pleasantly spent in this way, the company were conveyed back to Redmile, and thence to Nottingham in the same way as they had been brought, reaching the latter soon after 9 o'clock.

## WEDNESDAY'S EXCURSION.

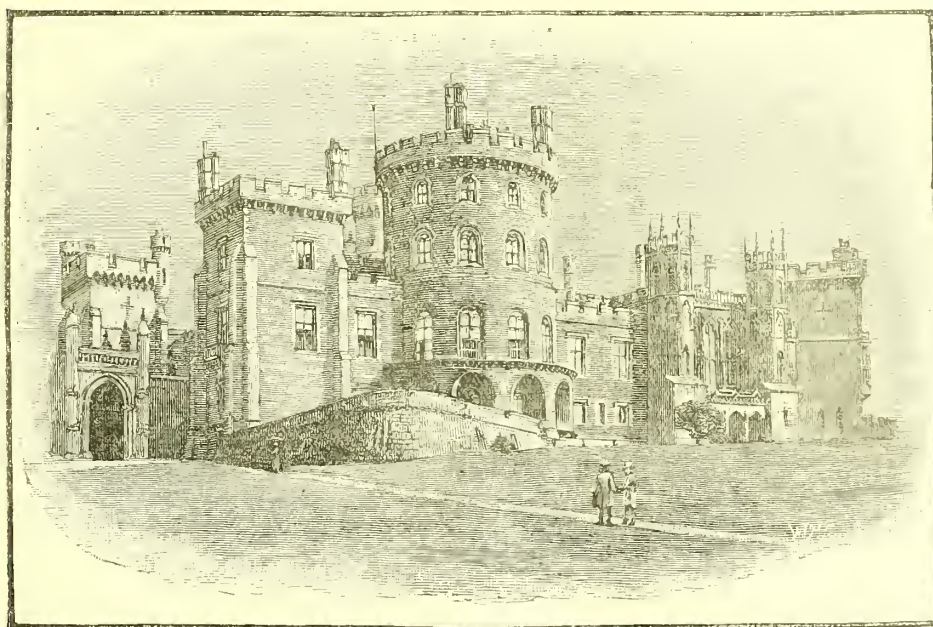
On leaving the Exchange Hall, the members and visitors found drags, waggonettes, and other vehicles awaiting them.





WOLLATON HALL. THE SEAT OF LORD MIDDLETON,

Visited by the Conference on Wednesday afternoon. One of the stateliest of the homes of England, built by Sir Francis Willoughby, in 1582, of Ancaster stone, for which coal was given in exchange. Baron Rothschild built a facsimile of this noble mansion at Mentmore. The entrance to the hall is through a fine old gateway, not unlike the West Gate of Canterbury.



BELVOIR CASTLE.

(From a photograph by Mr. J. Bliss, Grantham.)

"Lordly Belvoir" is the residence of the Duke of Rutland, and is second only to Windsor Castle in majestic appearance. It stands on a marlstone spur of the Leicestershire wolds, on a height which commands a radius of 26 miles, including parts of three counties—Leicester, Lincoln, and Nottingham. The castle was founded shortly after the Norman Conquest, and from 1247 to 1461 it was in the possession of the De Ros family. The Hastings family then held it for twenty years, when it was restored to Edmund, Lord Roos, and his sister, who had married Sir Robert de Manners, inherited it. A descendant of theirs became Earl of Rutland in 1528, and the dukedom was created by William of Orange. Belvoir Castle, as it stands now, is comparatively modern, having been rebuilt immediately after a destructive fire in 1816. It has a frontage of 252 feet, is built of stone in pseudo-Gothic style, and is famous for its spacious apartments and unequalled art-collections and curiosities.



in King Street close by. A considerable crowd of "natives" assembled to see the party drive off, which they did soon after half-past 4, and proceeded by way of the Lenton Boulevard to Wollaton Hall, the mansion of Lord Middleton, about four miles from the town. The Hall dates from the reign of Queen Elizabeth, and stands in the highest part of a fine park enclosed by a stone wall some seven miles in length. After entering the park, the road leads through a magnificent avenue of lime-trees nearly a mile in length. Tea was provided on the lawn, and was done ample justice to by the guests. After tea the party was collected into a group for the purpose of being photographed; and when this was over most of the company were escorted through the interior of the Hall in detachments, others preferring to wander through the park. At 7 o'clock the drive homeward was commenced, the route taken being the same as on the outward journey. The Castle and the rock on which it stands, with its caves, are seen to greater advantage from the Lenton Boulevard than from any other point of view, and were much admired. The company were set down at the Exchange Hall at about 8 o'clock, and thence dispersed.

### THE SMOKING-CONCERT

on Wednesday evening attracted a very large gathering in the Exchange Hall. Another concert was given in the drawing-room for the entertainment of the ladies, and the arrangements were uniformly excellent. At the "smoker" the chair was taken by Mr. Fitzhugh, and the vice-chairs by Messrs. Savage, Cross, and Rogerson. The company greatly enjoyed the very excellent programme of music and recitations provided, special favour being given to "My Queen," sung by Mr. Frank Clarke; a comic pharmaceutical song by Mr. A. H. Allen, which contained clever references to some of the papers read at the Conference; and various comic sketches by Mr. Davies.

When the evening was well advanced the health of Mr. Fitzhugh was proposed by Mr. Savage, and drunk with musical honours amid much enthusiasm. Mr. Fitzhugh resigned the chair to Mr. Rogerson shortly before midnight, and the concert was concluded at a rather late hour.

### PROPOSED TRADE FEDERATION.

A well-attended meeting of the local secretaries and delegates of local Associations attending the B.P.C. was held in the committee-room of the Exchange Hall, Nottingham, at 9 A.M. on Wednesday last.

Mr. W. Gowen Cross, Vice-president of the Pharmaceutical Society, having been voted to the chair, said it gave him great pleasure to be present at such a meeting, called to promote the greater unity of pharmacists.

An animated discussion took place, in which Messrs. H. Kemp, Manchester; C. Thompson, Birmingham; W. L. Currie, Glasgow; W. W. Savage, Brighton; D. McLaren, Edinburgh; J. Bateson, Kendal; E. H. Butler, Leicester; E. F. Harrison, London; J. H. Lake, Exeter; R. D. Gibbs, G. E. Perry, and others, took part.

It was unanimously resolved:—

"That a 'federation of local Pharmaceutical Associations' be formed, its object being to promote the greater unity of pharmacists and the better protection of their trade-interests."

"That a committee, consisting of Messrs. Cross, Currie, Kemp, and Thompson (Mr. Thompson acting as *pro tem.* Secretary), be appointed to communicate with the secretaries of local Associations with a view to the formation of an Executive."

[By the Editor: The above is a report supplied to us by Mr. Thompson. Our representative was refused admission to the meeting, on the ground that the presence of the Press was not desired.]

### GOOD REASONS FOR CONFIDENCE.

The President of the British Pharmaceutical Society (says the *Daily Chronicle*, in delightful disrespect of titles) was well justified in claiming that the work of that useful and

respectable body in recent years has been of distinct gain to the general public. Under the spell of its influence the ancient "rule-of-thumb" druggist, with his lack of botanical knowledge and chemical science, has well-nigh disappeared. His place has been taken by the scientifically-trained pharmacist, conscious of the serious responsibilities which Pharmacy, as the handmaid of Medicine, carries with its task. The rarity of errors is the best test of the care and accuracy of our "compounders of physick." A public which had not good reasons for its confidence would hardly go on swallowing pints of mysterious and unfathomable compounds with the childlike faith that characterises it in this respect.

### "MISTAKEN KINDNESS."

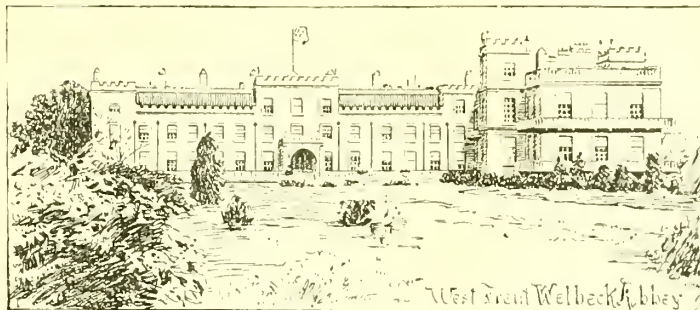
The *Nottingham Daily Guardian*, in an article on the Conference, says: "The business of which it is representative touches the whole community in a special manner, and the skill and ability of those who dispense medicine ought to be, as indeed they are, tested in an ample measure before applicants for admission to the Society are allowed to pass. The President, in his address, observed that it is mistaken kindness to pass an unprepared student. We should feel inclined to say something very much stronger. The opening of the business of the dispensing chemist to the unqualified would be a disastrous mistake, calculated to bring about consequences of a very serious nature. There is not, however, much danger of applicants being accepted until they have acquired a knowledge of modern pharmacy fully entitling them to practise as chemists. It was stated on Tuesday by the President that, as a matter of fact, from 60 to 70 per cent. of those who present themselves for examination fail to get through. The announcement is suggestive in the extreme. In the first place, it shows in the most forcible manner how stringent are the regulations that have been formulated for the protection of the nation. But to reflective minds the idea will come that were requirements less exacting a door would be thrown open through which innumerable persons of doubtful attainment might enter. The risks avoided by establishing a thorough system of examination are great and manifold, and the tendencies of the present day distinctly incline towards raising the standard of mental, scientific, and technical training essential to fit men for filling, with credit to themselves and satisfaction to their fellows, positions of undoubted importance. That so few accidents or mistakes arise in the dispensing of medicines is due in great measure to the oversight exercised by the Pharmaceutical Society and kindred organisations, whose duty it is to guard the public against mishaps which would, we fear, be far too apt to occur if indiscriminate admission were permitted to the ranks of dispensing chemists."

### THE EXCURSION ON THURSDAY.

which formed an enjoyable *finale* to this year's Conference proceedings, was described on the official programme as including a visit to Sherwood Forest and "The Dukeries." The latter somewhat uncouth-looking if expressive word indicated the prominent part which ducal estates and residences were to occupy in the day's sight-seeing. Welbeck Abbey, the seat of his Grace the Duke of Portland; Thoresby, the seat of Earl Manvers; and Clumber, the seat of the Duke of Newcastle, all in the course of a single afternoon, made up a panorama of magnificence which might well excuse the adoption of worse philological barbarisms than "Dukeries."

If blazing sunshine and a thermometer among three figures in the sun are factors in the make-up of an ideal day for an excursion, then Thursday came near to perfection. It was a day when the mere anticipation of forest shade and avenues of oaks reduced to trifles the discomfort of a preliminary railway journey, and in actual realisation the beauty of the scenery and the exhilarating drive among the umbrageous monarchs of the historic forest of Sherwood made it scarcely possible to realise what was actually the almost overwhelming heat of less shaded parts of the country.





WELBECK ABBEY, THE SEAT OF THE DUKE OF PORTLAND.

The abbey which stood upon this spot was used as a monastery until Henry VIII. gave it, in 1538, to a man named Whalley, and it was owned afterwards by a Cavendish of the Newcastle family, the Bentincks getting it by marriage in the eighteenth century. The abbey was rebuilt in 1604, and much has been added to it since. Apart from its associations with one of the wealthiest families in England, and the consequent sumptuousness of the apartments and richness of the art-collection, Welbeck Abbey is famous for its riding-school (385 feet long, 104 feet broad, and 51 feet high), approached by subterranean passages, and an underground picture-gallery (160 feet long, 64 feet wide, and 22 feet high). This gallery is said to be "the largest, and in every way most magnificent, private room in England."



A ROAD IN SHERWOOD FOREST.

This is a mere glimpse in what remains of the forest which legend and poetry have clothed with a verdure which rivals Nature's. Robin Hood and his merry men, the Kings of England down to the last of the Stuarts, and the flower of our chivalry sported in Sherwood. There yet remain many hundred acres of it, and in this prosaic nineteenth century, although it is scrubby, it is enough to make "merrie" in.



About 250 travelled from Mansfield Station about 9.45 A.M., and thence were taken in drags and waggonettes a drive of fifteen miles to Welbeck, through the Duke of Rutland's lands and Sherwood Forest. One of the notable sights was the old oak known as "Robin Hood's Larder," believed to be 1,500 years old.

About midday a visit was made to the stables, greenhouses and gardens, after which lunch was served in the riding, school underground. At the end of this function a vote of thanks was proposed to the local ladies' committee for their efforts in entertaining the ladies, to which Mr. Corder replied.

The party was photographed during the luncheon hour, and afterwards explored the underground chambers, ball-room, &c.

At 3.45 the journey was resumed, the drive back being by Clumber and Thoresby. The next halt was at Mansfield. This town was reached at 7.45, instead of 5.30. Tea was served in the Town Hall by Major Fox, to whom a cordial vote of thanks was proposed, and acknowledged by Mr. Paterson. The journey home was then resumed by special train.

## Scientific Notes:

On Chemistry, Pharmacy, Botany, Materia Medica, &c. Original, Selected and Translated.

### ISOPROPYLIC NITRITE.

THIS substance has been made by Beval through the action of silver nitrate upon isopropyl iodide. It boiled at 39°-39.5° C., and on saponification with alcoholic soda yielded sodium nitrite, so he does not doubt that he was dealing with a true etherial nitrite.

### FOR PURIFYING RIVER-WATER.

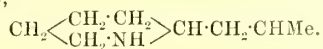
DR. CURTMAN, of St. Louis, uses hydrogen peroxide instead of potassium permanganate. Half an ounce of hydrogen peroxide is added to a gallon pitcher full of water at night, and the water next morning is not entirely, but comparatively, clear, having deposited most of its sediment. Besides this, the bacteria which swarmed in the water disappear to a very great extent, and the organic matter is so much oxidised that on the addition of a few drops of centinormal solution of potassium permanganate the colour is not discharged quickly, but remains for a considerable length of time.

### ACTIVE PRINCIPLES OF BRYONY.

BRYONIN  $C_{21}H_{35}O_{11}$ , one of the active principles of bryony isolated by Masson, is a white, very bitter, amorphous powder, and dextro-rotatory,  $[\alpha]_D = +41.25^\circ$ . It is precipitated by tannin and ammoniacal lead acetate, and is hydrolysed by dilute sulphuric acid into glucose and a resinous substance, *bryogenin*,  $C_{11}H_{19}O_5$ , which melts at 210° and is dextro-rotatory,  $[\alpha]_D = +105^\circ$ . This dissolves in concentrated sulphuric acid to a red solution, which changes to purple on heating, and from which a purple precipitate is then obtained on the addition of water. The residue left after extracting the root with water yields a resin on further extraction with alcohol. *Bryoresin*,  $C_{27}H_{45}O_{15}$ , is a red, amorphous substance which softens at 15°, but becomes liquid only at 250°. It forms compounds with alkalis, lead, and copper.

### A HOMOLOGUE OF CONIFINE.

F. JACOBI AND C. STOEHR state that when *a*-isobutylene-pyridine is reduced with sodium ethoxide it yields a *methylconifine*,



The pure base is a colourless liquid of sp. gr.  $0^\circ/4^\circ = 0.8533$ . It has the same odour and solubility as conifine, boils at 181°-182° (mercurial thread entirely in the vapour), and is volatile with steam. The *hydrochloride* forms colourless needles, and melts at 194°-195°; the *platinochloride* melts at 186°-187° with decomposition; the *hydriodide* crystallises in long needles or prisms, and melts at 208°-209°; whilst the *cadmioidide* crystallises in monosymmetric prisms, and melts at 131°-132°.—*Journ. Chem. Soc.*, lxi., 442.

### ENGRAVING ON GLASS BY ELECTRICITY.

A CORRESPONDENT of the *Popular Science News* states that a New York doctor has invented a process of engraving by electricity. The essential part of the patent is a brass holder, through which pass two copper wires to a slate-pencil at the end, around which is a platinum wire, so that the current passes through one copper wire, around the platinum wire to the other copper wire, and back to the dynamo. A syphon is introduced through the brass holder, thereby keeping it sufficiently cold to handle. A battery or dynamo may be used to generate the electricity, which must be up to 40 amperes. The current renders the platinum point nearly white with heat, so that it melts the glass under it and cleaves a shaving out of the hardest kind of glass. Some remarkably fine work has been accomplished by means of it, and smoke-quartz, agates, and the like may also be engraved.

### POTASSIUM CHROMATE AS AN INDICATOR.

TITRATIONS with silver nitrate, using potassium chromate as an indicator, are said not to be accurate, because silver chromate is to some extent soluble in water. Mr. W. Gathorne Young has gone into the matter, and in a communication to the Society of Public Analysts (*Analyst*, page 125), gives all particulars of his investigation. Sodium chloride was the chloride used, and potassium chromate the indicator. The following are the general results obtained:—Silver chromate is soluble in water to the extent of 6 parts in 100,000 of water at 15.5°, and more soluble in hot water. Titration should never take place with hot solutions, and even in the cold the bulk of the solution should be reduced as low as possible. The importance of the observations may be judged from the fact that the error in estimating chlorine in water may amount to 31 per cent. if proper precautions are not taken.

### CHLORINATED-LIME SOLUTIONS.

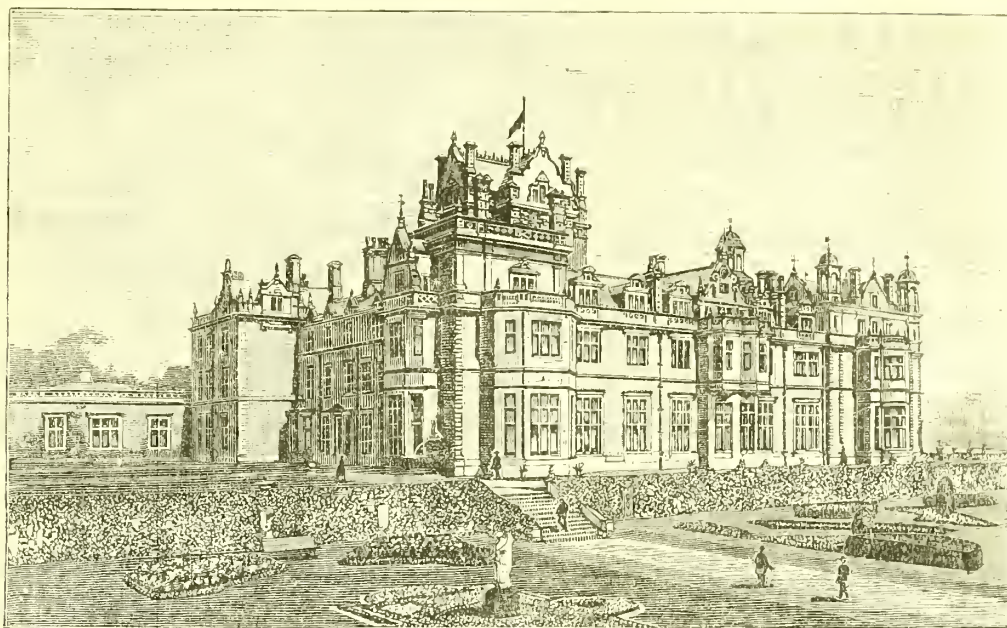
LANGE AND BACKOFEN have determined the specific gravities of chlorinated-lime solutions at 15°, and making allowance for calcium chloride and chlorate contained therein, find that the respective specific gravities indicate the following amounts of free chlorine in grammes per litre:—

Specific Gravity	Free Chlorine	Specific Gravity	Free Chlorine
1.115	71.50	1.055	32.63
1.110	68.00	1.050	29.60
1.105	64.50	1.045	26.62
1.100	61.50	1.040	23.75
1.095	58.40	1.035	20.44
1.090	55.18	1.030	17.33
1.085	52.27	1.025	14.47
1.080	49.95	1.020	11.41
1.075	45.70	1.015	8.48
1.070	42.31	1.010	5.68
1.065	39.10	1.005	2.71
1.060	35.81	1.0025	1.40

### CANAIGRE TANNIN.

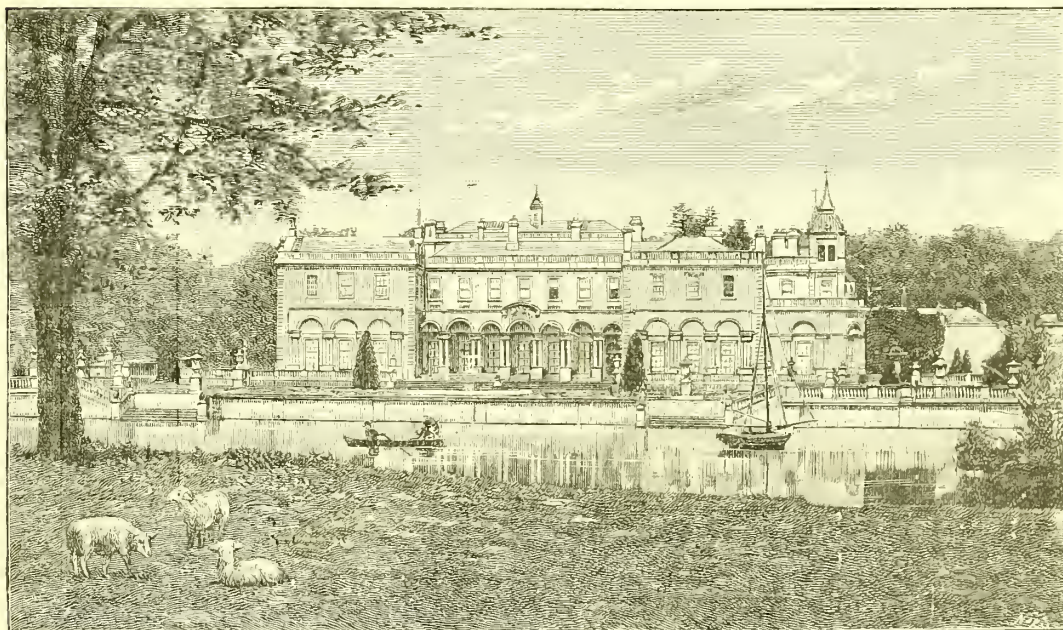
CANAIGRE is the tuberous root of *Rumex hymenosepalus*, a plant growing abundantly in the sandy soil of Texas, New Mexico, and Arizona. It is used in the States for tanning, and has lately been the subject of investigation by Professor Trimble and Mr. J. C. Peacock (*Amer. Journ. Phar.* lxi. 161). The root contains about 12 per cent. of tannin (calculated by the hide method) and the authors have succeeded in preparing it in the pure state as a porous, yellow substance, readily soluble in water. It gives a green colour with ferric chloride, and its chief characteristic is the red substance produced from it by hydrolysis with acids. This substance reduces Fehling's solution, and is insoluble in ether. The tannin would appear to belong to a group of which the tannins from mangrove and rhatany are typical representatives. Cold water is the best solvent for extraction. The root contains an ether-soluble yellow colouring principle allied to chrysophanic acid. The tannin is made from the aqueous extract by precipitation with lead acetate, agitation with acetic ether, and purification with ether, &c.; alkalis decompose it, catechol and protocatechuic acid being amongst the products.





THORESBY HOUSE, THE SEAT OF EARL MANVERS,

Visited when returning from Welbeck Abbey on Thursday. One of the seats which gave the district its title of "The Dukeries," having from early times been in the possession of the Pierrepont family, of which the Dukes of Kingston were the head. Earl Manvers is now the chief. Thoresby House has been built only since 1868, and is an unpretentious brick structure. There were two Thoresby Houses before it—viz., that demolished to give place to the present one, and the first, destroyed by fire in 1748. It was in the latter that the famous Lady Mary Wortley Montagu was born.



CLUMBER HOUSE, THE SEAT OF THE DUKE OF NEWCASTLE,

Situated in "The Dukeries," four miles from Worksop, and visited by the Conference excursionists on the return from Welbeck Abbey on Thursday. The mansion was built in 1772, and has been touched up on several occasions since—the church, for example, being quite a recent addition, having been erected in 1839 at a cost of 40,000*l*. The park within which Clumber House stands has a circumference of seven miles, and the artificial lake in front of the house covers eighty-seven acres. The art-collection contains many famous examples of old masters.



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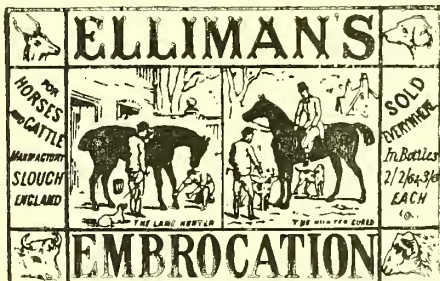
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## Editorial Comments.

### CONFERENCE WEEK.

FEW of the thirty meetings of the British Pharmaceutical Conference have commenced so auspiciously as that held in Nottingham this week. When the Association was still an infant of three it met in the lace town, and in full sympathy with the robustness of thirty the drug-trade of Nottingham and district have given the members a second welcome this week, which did not in the least reveal the depressed trade and the cutting practices from which they are suffering. Fine weather, good organisation, and a full attendance are the chief elements noticeable in the meeting's success. But some share of credit is due to the President, Mr. Octavius Corder, a genial man, well known in official circles, though a stranger to most of those who attended the meeting. Many have wondered why Mr. Corder should have been selected to fill the presidential chair this year. He has not, of recent years at least, taken an active interest in the Conference meetings, and his principal share in pharmaceutical matters



has been as a member of the Board of Examiners, with which the Conference has not the remotest connection. Events, however, have fairly justified the choice, for a more genial chairman, and one less regardful of his personal convenience and more alive to the objects of the meeting, could not be wished for.

As the object of these notes is to give a digest of the scientific proceedings, we must skip the social side of the Conference, with the remark that the reception of Monday evening was in every way a success, and the civic reception on Tuesday eminently showed how closely Nottingham pharmacy is in touch with the government of the town. The subject which Mr. Corder selected for

#### THE PRESIDENTIAL ADDRESS

was one of the most dangerous possible. Set a man who is a botanist and a bibliophile on a platform with an audience of two or three hundred before him, and it is ten chances to one that he will ride his hobby to death. But Tuesday's audience never had the chance of getting bored, for Mr. Corder carried them along with him on the journey which he took through the suburban London of John Gerard's time, and set them dreaming of that famous garden which grew where Somerset House now stands, and of which the memory is almost as ethereal as the garden itself. Down the Strand and Fleet Street, and up Fetter Lane to Holborn went the hobby-horse, the Conference members still following the scent keenly. Shakespeare joined the dream-hunt, adding zest to it; Elizabethan strawberries tempted a halt, but the old "Herbal" was too seductive, and before the dreamers quite knew their reckoning, or had forgotten the squeal of the mandrake or the bathos of the Arcadian barnacle, they were brought back to mundane topics, and the President had sat down. Mr. Corder's address was eminently characteristic; it showed his way of thinking, and his pastime as a pharmacist. These are what we want from those who occupy the Conference chair—something that they will be known by in future—something that will tell why they were honoured by their fellow-pharmacists; for, after all, the unobtrusive gentlemen who act as honorary secretaries are the real leaders of the meeting. After the Presidential address the way was clear for papers and discussions. Seven papers were put down for Tuesday, and these were all got through before 3.30 in the afternoon, which was the hour for adjournment.

The first paper was by Mr. William Elborne, who made his first pharmaceutical appearance since taking his B.A. degree at Cambridge, by communicating a note on the

#### BOTANICAL ORIGIN OF COTO-BARK,

which is a veritable pharmacognostic will-o'-the-wisp, and Mr. Elborne has not succeeded in getting nearer the source of the bark than anybody else. Once or twice he has come very near it, but the ubiquitous *Drimys Winteri* always sprang up bogey-like whenever he came into touch. The fact is that coto is called "canelo" by people in Amazonas, and Winter's bark goes under the same name. The two have actually been regarded in Europe as coto, and cotoin has been made from both. These active principles Mr. Elborne found to be identical in every respect, except that cotoin from the true bark is  $C_{22}H_{34}O_6$ , and from Winter's bark  $C_{21}H_{32}O_6$ . Mr. Elborne is continuing his investigation. The few remarks that followed the paper did not take the members further in this pharmacognostic research than the author had gone, and nobody except Mr. Naylor thought it worth while to point out that the two chemical bodies referred to are in all probability the same, for the ultimate analyses were

done by different men, and the chemical characteristics otherwise are identically the same.

Until the morning of the meeting the subject of Professor Clowes's communication had not transpired, but when the programme showed that

#### PHARMACEUTICAL EDUCATION IN NOTTINGHAM

was what he was to speak about, those who knew Professor Clowes expected to hear something good from him. They were not disappointed, for although all that the Professor could tell was merely a record of what has been done in Nottingham during the past twelve years, still that record includes the only instance of a successful scheme of pharmaceutical education in the provinces of Great Britain. We may divide the communication into three parts, which stand out prominently. First, the early rejection of perfected schemes for pharmaceutical education such as exist in Germany, this having been done in accordance with the sound principle that a scheme which is successful and long established may be, and generally is, ill-adapted for fresh ground, where the desire for education has to be fostered. Incidentally, Professor Clowes made some pertinent remarks as to the ability of England to devise its own educational schemes without German help, which pleased the audience mightily, albeit he had in early life the benefit of a final German polish himself. The second point of the paper was the most important. It predicated the necessity for utilising any local organisation which may exist, and securing the co-operation of working pharmacists in devising the curriculum and maintaining the interest of the classes. This has been done in Nottingham, and it is entirely to the credit of the chemists of the town that unostentatiously and at some expense to themselves they have maintained good relations with the authorities of the University College, and beaten every other town in the kingdom in this matter of education. Herein really came the moral of the paper: wherever there are University colleges the chemists of the town should arrange with the college authorities for a special course of training for pharmaceutical students. This brings us to the third and last point of the paper—viz., the scheme of education. Three years is the time that has been fixed in Nottingham for the whole of the subjects of the Minor examination, and experience has shown that students can do shop-work, read the proper text-books, and attend the college course without any sacrifice of social duties, and at the end of the course present themselves for and pass the Minor examination. We have means of knowing that this is a correct statement, and that the course of study is in every respect admirable educationally—i.e., the perceptive faculties of the students are cultivated, they learn to know principles and to apply them, and they become fitted for the work of life instead of for the examination-room only, which a concentrated course of study does not go beyond. In some respects it seems a pity that no discussion was allowed on Professor Clowes's paper, because we are left without practical results, and no arrangement made to give the communication practical effect. Will the Conference Executive or local associations give this their attention?

#### COLLODIUM BELLADONNE

was the next topic. The collodion was an imitation of a well-known proprietary preparation, and in producing the formula the Unofficial Formulary Committee bungled badly. That is ancient history, and we may learn to forget it. Messrs. R. Wright and W. A. H. Naylor independently have tried to produce a better formula and closer imitation of the original preparation. So they agree in using belladonna-leaves—in fact, when we compare their papers, different as



they appear on the surface, they come out in substantial agreement. Mr. Wright says:—Make a 2-in-1 fluid extract of the leaves with rectified spirit by re-percolation; mix the product with its own volume of ether, add the other ingredients of *Collodium flexile*, and you get a good collodion of belladonna containing not less than 0.25 per cent. of atropine. We may remark, by the way, that Mr. Wright's directions as to re-percolation are extremely prodigal of spirit, and he frankly confesses that he only takes out half of the alkaloid from the leaves. It looks bad pharmacy on paper, but in practice it comes out all right—saving the spirit. Thus Mr. Naylor also makes a 2-in-1 fluid extract, exhausting his drug, and evaporating the later percolates. In this way he gets an extract double the strength of Mr. Wright's; but when the ether and other substances are added, down goes half of the alkaloid. The liquid-belladonna plaster (Naylor) and collodium belladonnae (Wright) look, therefore, so very like each other that some thinking is needed before we know which to choose. Mr. Wright's simpler process appears to decide the matter. The discussion was peculiar. Mr. Wright happened to say something about German belladonna-leaf being bad; that was confirmed by several speakers. Mr. Druce especially giving a remarkable proof of it. It would be a good thing if the Germans would now give us a turn of the sound belladonna-leaf which they have hitherto used themselves, and try the bad stuff which we have taken so long from them without a murmur; otherwise an amendment of the Merchandise Marks Act, requiring that such drugs should be labelled "Grown in Germany," will be imperative. One other point that was discussed was interesting—viz., whether to use an alkaline menstruum or not. It was well argued, but on the whole the advocates of the leaf, instead of the root, and no chemical treatment had the best of it.

#### STANDARDISATION OF ALKALOIDAL TINCTURES.

Summarising the whole of their work on the alkaloidal tinctures, Messrs. Farr and Wright now presented to the Conference a scheme for the standardisation of all of them except tincture of aconite. We have no hesitation in saying that the members did not rise to the occasion at all—in other words, the paper missed fire. The authors presented able arguments for the standardisation of tinctures, and the continued use of such galenical preparations in preference to solutions of the active principles alone. They also showed that the method of preparing and standardising the tinctures is simple, and that there is no need for first preparing extracts, as has been proposed. By simple percolation, the whole of the drugs yield the greater part of their active constituents to from 12 to 15 oz. of menstruum when pint quantities of the drugs are used. The principal alkaloid, or total alkaloids, according as the case demands, in the first percolate are then determined, and from the result the amount of additional spirit required is calculated. The communication formed a fitting conclusion to the series of papers which the authors have published, and speakers appeared to regard it as that, remarks being more complimentary than instructive. Generally, however, it was agreed that evaporation is bad in the case of spirituous alkaloidal solutions, and, therefore, that tinctures, especially that of *nux vomica*, should not be made from solid extract.

#### SANDALWOOD OIL.

Mr. Michael Conroy read a useful paper on the specific gravity of sandalwood oil, in which he had the advantage over previous writers on the subject of showing from his practical experience in distillation that 0.872 is the minimum specific gravity of the oil. The British Pharmacopœia should

fix it at that, or, better, at 0.870, as the U.S.P. authorities have done. Mr. Conroy also showed that the high specific gravity of Indian distilled sandalwood oil is due to prolonged heating, and consequent oxidation, thus corroborating the statement published in our Chicago Exhibition notes a few weeks ago.

#### CONIUM-FRUIT

was the last subject considered on Tuesday. During their investigations on tincture of conium, Messrs. Farr and Wright found that the conium-fruit of commerce was extremely variable in alkaloidal value, from .095 to 1.304 being the percentage of coniine hydrochlorate obtained. They therefore collected some of the seed themselves, and, examining it, found that the time of collecting is of far greater importance than is generally appreciated. Moreover, there is the curious point to note that as soon as the seeds begin to turn yellow the alkaloid begins to disappear. As they had no difficulty in collecting immature and just mature fruit which yielded 3 to 3.3 per cent. of coniine hydrochlorate, it is obvious that much carelessness has been exhibited by collectors of the drug. At the same time, it should be said that the fruit varies in strength, and the authors think that the Pharmacopœia may fix 2 per cent. of alkaloidal hydrochlorate as the standard. The discussion again turned on German drugs, but it is small credit to us that we should have to go to Germany for this drug. Hemlock is one of the commonest of our wild plants, and any pharmacist who is near fields of it could soon make it a paying thing to collect the fruit in the green state, dry it carefully, and supply the whole trade if need be. But we have become so accustomed to take what we can get through the usual commercial channels, that some time may elapse before we notice what Nature has sent to our own doors.

#### WEDNESDAY'S BUSINESS

opened in as bright sunshine as that on the previous day. There was a rather poor audience to begin with, but that improved ere long. After a few trifling bits of general business had been transacted, the list of papers (now increased to twenty) was again attacked, the first being on

#### ADULTERATED BEESWAX.

The tale which Messrs. Parry and Estcourt had to unfold regarding commercial beeswax was harrowing, although not astonishing to those who have the opportunity of examining the many grades of wax which come into the English market. The authors found that one out of every three samples which they examined was pure, and that the stuff supplied by leading wholesale druggists was the worst obtainable. Paraffin and yellow resin were the only adulterants which they had been able to actually isolate, and the former was the more common of the two. Stearic acid they also suspected, but this seems an unlikely adulterant, tallow being more commonly used than either it or resin. It was quite time that attention should have been called to this matter, for it is perfectly well known in wholesale circles that sophistication of beeswax of all kinds is most flagrant. No drug-sale passes without tons of rubbish being sold as beeswax which is simply adulterated paraffin, and it reflects badly upon wholesale firms who nowadays have expert chemists on their staffs that they should be the medium for distributing the sophisticated stuff to retailers. It is no credit to the latter, either, that they should calmly accept the stuff without grumbling. True, there was manifested on Wednesday in the course of the discussion on this paper, a healthy spirit of dissatisfaction with the state of things alluded to. Some of the speakers asserted stontly that there was plenty of genuine beeswax to be obtained, if



it were required, but others let fall depressing hints of yellow soap and large stones as adulterants within their own experience, or testified to the necessity of buying direct from the farmer or beekeeper in the country if a genuine article were desired.

#### EASTON'S SYRUP

is a perennial subject, and one which is always popular for discussion. Perhaps Mr. R. Wright had that in his eye when he wrote the paper which he read, for he had nothing particularly novel to communicate, the note simply consisting of an intelligent *résumé* of the literature on the subject, and concluding with a formula such as may be taken as the basis for an official one. Three points Mr. Wright considers to be cardinal—first, that the ferrous phosphate is best prepared by the direct action of phosphatic acid upon metallic iron; second, that the employment of the official *syrupus ferri phosphatis* in the process for making this syrup should be discontinued; and, third, that the quantity of sugar should be reduced by about 10 per cent., as suggested by Martindale and Clague.

The most notable feature of the discussion was Mr. Rutherford Hill's championship of Mr. Lyon's paper on the subject, beyond which, in his opinion, Mr. Wright had progressed little if at all. After listening to Mr. Hill's eulogy of the Lyon process and results, it was distinctly diverting to hear the other side of the story, and to learn that Mr. Lyon was himself largely, if not entirely, indebted to Mr. Wright's work on syrup of iron phosphate for the excellence of the product yielded by his formula. Attention was called to the various possible factors in the coloration and decomposition of the syrup, but nothing at all novel was suggested. Who will investigate Mr. Grierson's tar-like syrup?

#### EFFERVESCING CAFFEINE PREPARATIONS.

The examination of effervescing caffeine citrate and hydrobromate yielded results which led Mr. Ough to the conclusion that more care was required in their manufacture. Several of the samples appeared to contain a larger proportion of the alkaloid than that stated on the label, and in two instances the actual was more than double the stated strength. In other cases the discrepancy was in the reverse direction. The variations from test-samples made for purposes of comparison were occasionally sufficiently marked to be indicated by the taste.

The figures of Mr. Ough's analyses were characterised as remarkable during the discussion, and surprise was expressed that more accuracy was not attained in the manufacture of such simple preparations.

#### THE THYROID GLAND IN PHARMACY.

Mr. White's experiments on the pharmacy of the thyroid gland indicated the superiority of the glycerine extract from the fresh organ to the fresh or dried gland. Other forms of administering the remedy were glycerine extract of the sliced gland previously treated with alcohol (to coagulate colouring-matter, &c.), a dilute alcoholic extract, and the powders obtained either by precipitating the glycerine extract with alcohol or with phosphoric acid and lime-water. In the last-mentioned case calcium phosphate is formed, the process being based on the assumption that the active principle of the gland is a ferment; the product—the first dry permanent preparation of the gland introduced into medicine—had been used successfully in a large number of cases. The other preparations had been less largely tried or were still under examination. Regarding the use of glycerine as a vehicle, the question was raised in the discussion as to the gravity of the objection to its use dependent on the revulsion against glycerine preparations experienced by

most patients after a time. In this case, however, the amount of glycerine necessary to be taken is only a few minims weekly. There appeared to be considerable difference of opinion as to the physiological activity of the gland. On the one hand, we are told that large quantities can be taken (at any rate, by dogs) without any effect; and on the other, serious results are said to have followed overdoses.

#### PAPAIN.

The chemistry either of papain itself or of its action upon proteids has not been far advanced by Mr. Davis's communication. The principle appears to possess a moderate solvent action upon albumen in neutral solution, and a more marked effect in the presence of alkali when not exceeding 0.25 per cent. A trace of hydrochloric acid seemed to have (in a single experiment) a slight accelerant action on the process, but in the presence of even  $\frac{1}{2}$  per mille of the acid no digestion at all occurred. The author could not corroborate certain statements that have been made as to the solvent influence of papain on living tissue. The products of the action of papain on proteids resembled those of trypsin under the same circumstances.

In the discussion, Mr. Gerrard raised the old question, What is digestion? and suggested that the author had not brought forward convincing proof in support of his figures indicating the digestive activity of the principle. Some remarks on the successful use of papain for the solution or disintegration of the diphtheritic membrane, and among poultry-rearers for certain throat-diseases, were interesting as positive contributions to the solution of a much-debated question.

#### IPECACUANHAS OF ENGLISH COMMERCE.

Mr. Holmes compiled a paper from the morphological characters and histological structure of official Cartagena and spurious ipecacuanha. The chemistry of the drugs was also slightly touched upon. The value of the communication lies in the adaptation of its clear and concise arrangement to the facilitation of the detection of spurious ipecacuanhas by the retail pharmacist.

#### DEËMETINISED IPECACUANHA

has been used for some years in the treatment of dysentery, as emetine is not required in that case. None, except one German manufacturer, appear to have hit upon a good method for removing emetine completely from ipecacuanha powder, for commercial samples have been found to contain large percentages of the natural quantity. Mr. F. C. J. Bird, therefore, came before the Conference with a successful process which he has worked out. It consists in exhausting natural ipecacuanha powder with ammoniated chloroform removing the alkaloid from the chloroform with dilute sulphuric acid, returning the chloroform to the powder, and drying. These two papers dealing with ipecacuanha—though from totally different points of view—were discussed together. Somewhat curiously, the only part of Mr. Holmes's communication which excited comment was a more or less incidental suggestion in the concluding paragraph that chemists would do well, in view of the difficulty of detecting adulteration of *pulv. ipecac.*, to powder their own drug. This remark drew a protest from the President and Mr. Conroy, though Mr. Strother was not at all convinced of its impropriety. The mention of emetine afforded Dr. Paul an opportunity for laying before the meeting an outline of the results of his work in conjunction with Mr. Cownley on the alkaloid. Deëmetinised ipecacuanha of German manufacture is evidently not always what it should be, and the entire question as to the usefulness of the preparation does not seem to be free from doubt. The use of powdered ipe-



caucanha in surgery, and the preliminary bacteriological researches upon its kolyseptic power at Guy's, emphasise the desirability of a more extended knowledge of the constituents and therapeutically active principles of the drug.

#### ESTIMATION OF DIASTASIC ACTION.

This is another subject of almost perennial interest, concerning which the reader of each new contribution feels that the final settlement is still remote. Of course, so long as the nature and structure of diastase remain problematical no great progress can be expected in the estimation of the value of preparations containing it. The main point of Mr. Dott's study of the diastatic—why not the more usual “diastatic”?—action on arrowroot starch is that the iodine process is preferable to that dependent on the determination of the maltose formed, yielding more constant results and less likely to be affected by accidental variation in the proportion of the reacting ingredients, &c. Mr. Grierson felt a little sore that Mr. Dott now recommended a method of estimation which, when *he* had suggested it, Mr. Dott had decried; it was not, therefore, surprising that he was inclined to differ from the author in one or two minor details of the process.

Two papers were communicated on

#### LITHIUM SALTS.

The first, by Mr. H. Bowden (who, by the way, is a regular competitor in our “Corner for Students”), was on the purity of lithium carbonate and citrate. The express object of the paper did not appear, for it was stated that the samples examined were commercial; but if so, then there has been a distinct advance since last year, when Mr. William Mair showed that commercial salts of lithium were not satisfactory. Mr. Bowden finds that they now are. The second paper was by Mr. D. B. Dott, it being a record of the extent to which crystallised lithium nitrate is hydrated. Incidentally he showed that the salt can be crystallised at 18° C., and that it is unnecessary to go as low as 10° C., according to accepted statement. The formula of the salt he found to be  $\text{LiNO}_3 \cdot 3\text{H}_2\text{O}$ , not  $(\text{LiNO}_3)_2 \cdot 5\text{H}_2\text{O}$ , as given in Watt's “Dictionary.” Probably the President and Mr. Symons expressed a general feeling when they implied that about enough had been made of the examination of lithium salts, and that the subject should be omitted from the future issues of the Blue List. According to the evidence of Mr. Symons, lithium carbonate, at any rate, can be obtained in large quantities practically pure.

#### AFRICAN COPAIBA.

Mr. John C. Umney finds that African copaiba, which was imported into London for the first time a year or two ago, is not an article which should be treated with contempt. When this “balsam” first came into Mincing Lane we had it examined, and expressed the opinion that it was worth attention. Mr. Umney has now examined it very thoroughly, and compared it, in regard to essential oil and resins, with South American copaibas, and he finds that, although there are slight differences, the balsam is substantially the same as the others; while Mr. Hurry Fenwick, F.R.C.S., the well-known venereal specialist, is of opinion that it is a valuable therapeutic agent—not so potent as South American copaiba, but pleasanter to take and better liked by patients. Neither the little conversation between the President and Mr. Druce on the habitat of *Copaifera* species nor Mr. Hill's incident of the crystals which separated from the copaiba mixture added anything new to the subject.

To conclude the scientific part of the proceedings, the Chairman intimated that the last two

#### PAPERS ON APPARATUS

would be taken as read, as neither author had sent a specimen of his apparatus, and nobody could understand them without. Hard on the authors, but a good excuse for getting to the finishing business. The first of the papers was by Mr. Hoseason on a cheap apparatus for estimating  $\text{CO}_2$  by weight, and the second by Mr. Forret on an apparatus for washing and draining precipitates in such a way that oxidation is prevented. Both papers are given by us in this issue with illustrations. Communications of this kind are most useful, and we get too few of them, perhaps because not many chemists are gifted with mechanical ingenuity and manipulative skill in working with glass. That is the better reason why all should learn glass-blowing when young, as Mr. Hoseason advocated.

#### THE CONCLUDING PROCEEDINGS

can be briefly summarised. The Conference will meet at Oxford next year (still following the lead of the British Association), and Mr. N. H. Martin, of Newcastle-on-Tyne, will preside. The meeting ended with cordiality, but it is right it should be said that during the greater part of the time the tone of the meeting was very sleepy, this being due probably to the extremely hot weather. The afternoons of both days showed the usual symptom of rash and intolerable dullness (owing to the small attendance). It is therefore a question whether a complete alteration should not be made in the order of proceedings. A good audience cannot be obtained after luncheon, so the plan which we would suggest would be to have a four hours' sederunt each day—viz., from 10 A.M. to 2 P.M.—and should it be impossible to include voting and “thanks” business in the sederunt on the second day, an adjournment could be made until the evening. We believe that such a plan as this is regarded favourably by some members of the Executive, and if it were adopted the attendance during discussions would be better maintained, and the local committees would have a much freer hand in arranging for social functions. The figures annexed to our report on this occasion show that the Conference business is despatched with striking celerity, but it is still possible, we think, to apply the screw in some quarters. What is observable is that the best men and the best papers occupy comparatively the shortest time.

#### GERARD AND HIS HERBAL.

It is a curious circumstance that botany as an integral constituent of the art of pharmacy has scarcely been recognised by the British Pharmaceutical Conference between the two Nottingham meetings of that body in 1866 and 1893. Professor Bentley, who presided in the former year, dealt in his address with the study of botany in connection with pharmacy. He continued the same subject at Dundee in 1867; but from then to now botany has scarcely been mentioned in the presidential addresses. Mr. W. Southall, who filled the chair in 1880, was the only subsequent President until Mr. Corder with a special reputation as a botanist, and his address had relation principally to ancient medicine and druggery, rather than to botany as a science. Perhaps it was with a view of remedying the injustice in some degree that Mr. Corder was selected as the President of this year's Conference. No one who heard his address, or who may read it, can doubt that the science of plants is a subject very near his heart, and he wisely decided to make it the topic of his speech. His plaintive opening plea that subjects are getting exhausted is not deserving of much sympathy. Subjects will never get exhausted. With the vast history of the past, with the present teeming with active



thought and life, and with the illimitable future to speculate about, a President's difficulty ought never to be other than that of selection.

After plodding through the inevitable paragraph about apprenticeship and cram, which no orthodox President would dare to omit, Mr. Corder turned with an evident relish to communion with a very old chum of all English Botanists—John Gerard, the famous old herbalist of Queen Elizabeth's reign. Gerard was a man of repute in his own day. He was a Master in Chirurgie, and ultimately filled the chair of the Barber-Surgeons' Company. But all his time must have been taken up with his gardens. He had his own "physicke garden" in Holborn, and superintended the far more extensive grounds of Lord Burleigh's in the Strand. Very pleasantly Mr. Corder pictured to his audience the pleasant side of old London, when strawberries grew in Ely Place, and pleasant country lanes and noblemen's gardens intervened between the cities of London and Westminster. We may remind those inclined to be fascinated with the reminiscence that those old roads were neither paved, nor drained, nor lighted. Shakespeare may have rambled round that Strand garden, perhaps in company with Gerard; but he could not play tennis on its lawns, and if the old herbalist went back with him to the Globe Theatre he had no doubt to sit through the play on an uncomfortable seat and without much accessory in the way of scenery or costume to help him to enjoy it.

Mr. Corder is too delicate towards his old friend to be critical. His early comment on the drawings, which, "although practically unshaded," are "perfect in outline, and the characteristics of each plant are shown with a fidelity and simplicity which enable them to be easily identified," possibly refers to the frontispiece only. Most readers will assume it to apply to the illustrations generally. For these Gerard has no claim to any credit. The pictures had, we believe, all appeared in a famous old German herbal called the "Kreuterbuch" of Tabernaemontanus. Mr. Corder notes, indeed, a good bit later on, that "the blocks were mostly obtained from Frankfort." Most likely Gerard simply wrote up to the illustrations, and there is reason to believe that much of his text was cribbed. But he was a sound practical gardener, and did much for the extension of a love for plants in this country, and in the promotion of the study of their medicinal virtues. We are glad he has won the freedom of the British Pharmaceutical Conference.

#### THE INVENTION OF CORDITE.

Serious charges against the conduct of Sir Frederick Abel in connection with the smokeless powder patented by him, called "Cordite," have been published lately in the *Pall Mall Gazette*. It is alleged by that paper that Sir Frederick Abel, as chemical adviser to the War Office, had opportunities of becoming acquainted with the various smokeless powders submitted to the Government; that he was then allowed to patent his own powder and (in the public interest) to keep the patent a secret; that subsequently he used his position to ward off outside competition against his own invention; and, further, that he assigned his foreign rights to a Cologne manufacturer. The *Pall Mall Gazette* further claims to have evidence of the unsatisfactory character of this cordite as a smokeless powder, and demands that the whole history shall be investigated—a demand which he can hardly, in the national interest, refuse. The matter has been brought before Parliament, and there is little doubt that we are not within sight of the end of it.

#### LONDON LEMONADE.

In a recent *Pharmacological Record* Messrs. Helbing and Passmore report the details of an analytical examination of seven samples of lemonade bought into London at well-known restaurants and places of public entertainment. According to their tests, only one of these was made with cane-sugar and citric acid exclusively. Either tartaric or phosphoric acid or both were discovered in the other six samples. Grape-sugar with cane-sugar was found in one of the samples, in four others grape-sugar alone formed the syrup, and in two other cases it was aided by saccharin. The carbonic-acid gas was mixed with air in five cases, and lead, varying from  $1\frac{1}{2}$  to 6 parts per million, was detected in the six unsatisfactory samples. In the one lemonade which went through all stages of the investigation with credit, it was found in "traces too small for estimation." It is mentioned that the lemonade which was fully up to standard was Idris's.

#### DRUGGISTS' ADVERTISEMENTS.

The following suggestions for advertisements are quoted from the last issue of *Printers' Ink*, one of the liveliest of advertisers' journals:—

§ § § § § § § § § § BEAUTY  
§ DOLLARS for BRAINS. § SKIN DEEP.

§ To the persons sending in correct guesses of the number of §  
§ customers in our store next §  
§ Saturday we will give \$25.00 §  
§ first, \$15.00 second, \$10.00 third. §  
§ § § § § § § § §

Many people would be pleased with beauty no deeper than that. How shall they get it?

Use "CREME ANGELINE."

At night steam the face over hot water, head covered with towel. Dry. Rub Creme well in.

#### ACROBATS

double up of their own accord as a matter of business, and straighten them-selves out without apparent effort. But a slight attack of colic, cholera, or other hot-weather evil is liable to double you up at a moment's notice, and you can't straighten yourself out without the aid of Schoonmaker's Sure Cure Cholera Drops—a fifteen-minute remedy for all summer complaints. Fortify yourself; keep it in the house. Prepared and sold only by

Pimples Gone.  
Wrinkles Gone.  
Skin Perfect.

#### SODA WATER

AT ALL

DRUG STORES,  
BUT

BETTER AT OURS  
THAN ELSEWHERE.

All the old flavours and some first-class new ones.

SCHOONMAKER,

The PRESCRIPTION DRUGGIST.

PESTLE & MORTAR,

100 SUMMER STREET.

#### THE INTERNATIONAL MEDICAL CONGRESS.

The eleventh International Medical Congress, which is to be held in Rome next April, will, as usual, be accompanied by an International Medical and Hygienic Exhibition, in which firms of all nations are invited to take part. The exposition will keep open for a month. It is Professor Luigi Pagliani, "Ministero dell' Interno," Rome, to whom applications should be addressed, and he has a sufficiency of room at his disposal to satisfy intending participants. The exhibition comprises ten regular groups and two supplementary ones. The first category is divided thus:—Instruments, materials and plans of buildings for biological, therapeutical, and hygienic purposes; medical and surgical instruments; objects in connection with the work of public assistance and salvage; drainage and public health; the hygienic service of cities; plans, models, and materials of hygienic structures; the hygienic service of public dwellings and other buildings of common use; individual hygiene; the hygiene of workshops and factories; photographs and recent publications relating to the medical, biological and hygienic sciences. The two supplemental groups are a hydrological and balneo-therapeutic one, and one devoted to the Italian Red Cross Society.



## THE WANDERING JEW EXPLAINED.

The strange old legend of the Wandering Jew is another of the myths of our early days which modern science disputes. According to Dr. Meige, of the Salpêtrière Hospital, he or they was or were merely "nervopathe voyageurs." Persons so diseased, he says, are pretty well known at the famous epileptic hospital. They know nothing about *le juif errant*, and are in no way troubled over any particular impiety which they may have committed. They are simply plagued with an irresistible itch for ever moving on. They are invariably Oriental Jews, haggard, weather-beaten wretches, who bear a striking resemblance to the traditional pictures of Cartophilus and other representatives of the Wandering Jew. Like them they speak many languages, and have generally, in common with those personages, applied to "magicians" to remove the spell under which they believe themselves to lie. They never can settle down for any length of time, but always manage to keep a few coins to pay their way when next the wandering fit seizes them. Their disease has usually been produced by some serious nervous shock, and is incurable.

## WHERE OXYGEN CAME FROM.

It has often troubled philosophers to tell whether there is oxygen on the sun or not, but the late Mr. Proctor was of opinion that there is. Perhaps he was right; but on the strictly evolutionary basis, if Dr. T. L. Phipson is to be believed, he is wrong. Investigating the matter from the biological point of view, he observed that micro-organisms "manufactured oxygen," although they were not supplied with it. He also grew plants in an atmosphere of pure carbonic-acid gas or a mixture of that and nitrogen, or in pure nitrogen alone with a root-feed containing CO<sub>2</sub>, he found that oxygen was gradually "manufactured." There is nothing very startling in that; in fact, it is entirely according to the Chemical Hoyle and biological precedent; but Dr. Phipson takes us back to the primitive ages of the globe, when there was no free oxygen upon it—because, he explains, there are now in the earth's crust matters which are oxidisable, and would have been oxidised during these far-back ages if there had been free oxygen to do it. So we arrive at the conclusion that there was at one time an oxygenless atmosphere. Where did the oxygen come from? Dr. Phipson replies that the oxygen of the atmosphere is the product of vegetable life, and "into the primitive atmosphere of nitrogen plants have poured oxygen, year after year, for countless myriads of ages, until it has attained the composition which it has at the present day." It is a beautiful theory, but can be riddled as full of holes as a Bisley target as soon as one begins to think it over. As interesting is the fact that when Priestley's house was burnt, in 1791, by the Birmingham mob, he saved his life by escaping in Dr. Phipson's grandfather's carriage. Dr. Phipson commences his paper in the *Chemical News* with that statement.

**PROFITABLE BUSINESS.**—The "Town Traveller" is a busy man. He is met in half-a-dozen different quarters in a single week, and he is always interesting. A well-known man from a City drug-house gave his quarter of hour's rest after luncheon one day this week to enlightening his fellow knights of the road as to chemists' profits. Though the cutting prices at the Stores are a considerable disadvantage, there is one house (he says) which does remarkable business in "pick-me-ups," which, of course, means morning-revivers. Our correspondent did not ask him of what these revivers are composed, but the entire company of lunchers appeared to make mental resolve to open shop as "pick-me-up" dispensers when he solemnly told them that 3*l.* a morning was the average takings for "pick-me-ups," and 2*l.* 15*s.* of that profit! And seven days in the week, too!

## DEEDS OF ARRANGEMENT.

The following deeds of arrangement with creditors have been filed at the Bills of Sale Office, under the provisions of the Deeds of Arrangement Act, 1867. Some of these deeds are for the purpose of carrying out compositions with creditors (and such are specified below), but the great majority of them are "assignments" in the ordinary form, to a trustee or trustees, for the benefit of creditors. The Act referred to expressly provides that registration shall not give validity to any deed which is an act of bankruptcy, and there is no provision in the Act making any of these arrangements binding upon dissenting creditors.

**Ibbotson, F.** (trading as Jane Ibbotson), widow, Cathedral Corner 1 Northgate and 30 York Street, Wakefield, chemist and druggist. Trustee, Robert Wm. H. Bant, Cross Street, Wakefield, accountant with a committee of inspection. Dated, August 8; filed, August 11: unsecured liabilities, 730*l.* 1*s.* 8*d.*; estimated net assets, 467*l.* 13*s.* 9*d.*. Assignment upon trust. Trustee to carry on the business, with a view to payment of 10*s.* in the pound.

	£	s.	d.
Bleasdale, Wm., & Co., York .. .. .	35	2	2
Blundell, Spence & Co. (Limited), Hull .. .. .	27	4	5
Bant, R. W. H., Wakefield .. .. .	11	11	0
Evans, Sons & Co., Liverpool .. .. .	47	6	5
Hartley, Brewer & Co., Hull .. .. .	15	8	10
Hirst, Brook & Hirst, Leeds .. .. .	54	3	8
Kingswell, W. H., Wakefield .. .. .	25	15	5
Lister & Co., Drakefield .. .. .	39	4	0
Midland Vinegar Company, Birmingham .. .. .	48	11	6
Raines & Co., York .. .. .	17	0	2
Sanderson & Clayton, Wakefield .. .. .	10	14	2
Sanger, J., & Sons, London .. .. .	12	11	3
Slatter, Dr. W. A., Wakefield .. .. .	17	10	0
Sumner, R., & Co., Liverpool .. .. .	27	0	3
Todd, W. R., & Son, Hull .. .. .	62	15	3
Wakefield and Barnsley Union Bank, Wakefield .. .. .	35	19	2

**Waterhouse, Albert**, Bond Street, Dewsbury, and East Brierley, near Bradford, chemist and druggist. Trustee, Walter Dawson, Dewsbury, chartered accountant. Dated, August 4; filed, August 10; unsecured liabilities, 346*l.* 9*s.* 11*d.*; estimated net assets, 155*l.*

	£	s.	d.
Raines & Co., York .. .. .	18	0	0
Waterhouse, John, East Brierley .. .. .	239	0	0

(And forty under 10*l.*)

## TRUST DEED (SCOTLAND).

**Linton, Ralph Tait**, chemist, Edinburgh.

	£	s.	d.
Ballantyne, J. & J., Edinburgh .. .. .	14	11	10
Commercial Bank, Edinburgh .. .. .	32	2	1
Duncan, Flockhart & Co., Edinburgh .. .. .	78	9	11
Edinburgh Gas Company, Edinburgh .. .. .	15	15	2
Fisher, D., Edinburgh .. .. .	12	19	2
Forrest, N., Edinburgh .. .. .	18	6	2
Hockin, Wilson & Co., London .. .. .	27	0	4
Kemp & Son, Horncastle .. .. .	16	19	3
Linton, J., Edinburgh .. .. .	775	12	7
Mould & Tod, Edinburgh .. .. .	15	5	6

£1,102 0 8

## Assets.

Heritable properties (say) .. .. .	£2,600	0	0
Bond thereon .. .. .	2,000	0	0
	600	0	0
Stock, book-lebts, furniture, &c. .. .. .	1,300	0	0
	£1,500	0	0
Less preferable debts, rents, feu duties, rates and taxes, &c. .. .. .	1,225	0	0
Balance .. .. .	£675	0	0

A TEACHER was explaining to a little girl how the trees developed their foliage in the springtime. "Ah, yes," said the wee miss, "I understand; they keep their summer clothes in their trunks."

AN ECLECTIC DOCTOR suggests an extract of jalap made with water will be found a good remedy, as it influences both bowels and kidneys. On the bowels its action is stimulant, and it increases the true secretion. This seems a startling suggestion. Has anyone tried it?



## MARRIAGES.

[Notices of Marriages and Deaths are inserted free if sent with proper authentication.]

GLENDENNING—OWEN.—On August 14, at the Cathedral, Newcastle-on-Tyne, by the Rev. John R. Trotter, Vicar of St. Anthony's, William George, second son of William Glendenning, to Fanny Elizabeth, eldest daughter of Richard Owen, all of Newcastle.

REAY—GREENHOW.—On August 7, at Ellenborough, Maryport, Cumberland, by the Rev. W. Spedding, John Reay, chemist and druggist, Carlisle, to Hannah, only daughter of John Greenhow, Ellenborough.

WHITELEY—WEST.—On August 16, at the Wesleyan Chapel, Stretford, by the Rev. G. Talalan Newton, Frank, fourth son of Richard Whiteley, Grandeourts, Rayne, Essex, to Nellie, second daughter of Thomas West, chemist, Stretford.

## DEATHS.

SMITH.—At Bowdon, near Manchester, on August 12, from paralysis, Mr. Frederick John Smith (formerly of East Dereham, Norfolk), for many years one of the country representatives of Messrs. Wright, Layman & Umney, of Southwark, London.

SPENCER.—The death is announced of Mr. Thomas Spencer, chemist and druggist, Market Place, Wokingham. Mr. Spence had resided in the town for nearly sixty years, and was for a considerable period postmaster. He was 82 years of age.

WEDGE.—The death of Mr. W. E. Wedge, who for many years carried on the business of a chemist and druggist at Queen Street, Wolverhampton, is reported. Mr. Wedge had only retired from business a week before his death. He was a collector of old and rare books, prints, and sketches.

H.R.H. AND CO.—The Duchess of Teck and suite, who are staying at Bad Neuenahr, visited the neighbouring Apollinaris Spring on Friday last. Her Royal Highness was conducted through the premises, and was interested in watching the various operations of filling, corking, labelling, and packing the Apollinaris natural mineral water. The Duchess was much impressed with the very large amount of carbonic-acid gas contained in the spring, and proceeded for a few steps towards the sunken courtyard in which the spring issues from the ground, in order to experience the effect of the gas, and afterwards caused her son, Prince Alexander, and her suite to do the same in order to convince themselves of the volume and density of the carbonic-acid gas there accumulated.—*St. James's Gazette*.

POISONOUS PATENT MEDICINES.—In the House of Commons to-night (Thursday), Mr. Frederic Frye had on the paper notice of his intention to ask the Secretary to the Treasury (it having been stated by the Parliamentary Committee of the British Medical Association, in their recent report on the sale of patent medicines, that the further action of the Public Prosecutor in respect of actions taken by him has been limited by the directions given to the officers of the Treasury by the Attorney-General), firstly, to prosecute only in the event of a particular preparation being really poisonous or dangerous on the ground of poisonous ingredients, and, secondly, that the mere presence of a poisonous ingredient, if not in sufficient quantity to make the article sold poisonous, would not justify proceedings under the 17th section of the Act, is the Pharmaceutical Society justified, in face of this restriction, in continuing to demand penalties from tradesmen throughout the kingdom; and, if so, on what grounds.

On the question being reached, however, Mr. Frye said that by request he wished to postpone it till Monday.

## Practical Notes and Formula.

## PARAFFINUM MOLLE.

THERE has always been considerable mystery as to the origin of vaseline and similar preparations of petroleum, especially in regard to what the "residues" are from which they are made. Professor S. P. Sadtler, of the Philadelphia College of Pharmacy, in his article on American petroleum contributed to Thorpe's Dictionary of Technical Chemistry, throws light on the matter. The residues in question are what remains in the still after the burning-oils, or lighter fractions, are distilled off *in vacuo* without cracking. By "cracking" is meant the process in which the heavy oils are distilled at a high temperature, the condensed vapour being returned again to the still. In this process the heavy oils are split up, and a larger yield of burning oil is obtained. Distillation *in vacuo* is carried out by the use of superheated steam instead of direct firing. The heavy or reduced oils thereby obtained as a residuum are either brought into the market at once without further treatment, or after a bone-black filtration. This production of filtered oils is usually combined with the manufacture of vaseline or of petrolatum, as it is now known in the U.S. Pharmacopœia. Taking a vacuum residuum as the raw material, this is melted and run on to filters of fine granular well-dried bone-black. The filters are either steam-jacketed or are placed in rooms heated by steam-coils to 120° F. or higher. The first runnings are colourless; and all up to a certain grade of colour go to the manufacture of vaseline. Beyond that the filtrate is known as "filtered cylinder-oil" and is used as a lubricant exclusively.

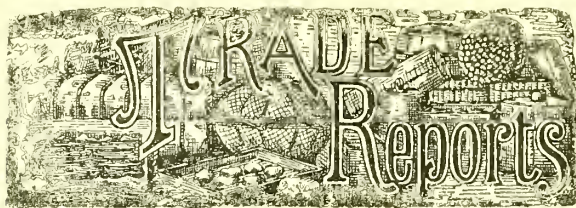
## A QUESTIONABLE INCOMPATIBILITY.

CITRATE of iron and quinine and potassium iodide are generally considered to be incompatible, and for that reason the following mixtures are put down in that category:

B				
Citrate of iron and quinine	..	..	..	30 grs.
Potassium iodide	..	..	..	90 "
Water	..	..	..	1 fl. oz.
Syrup	..	..	..	1 "
Mix.				
A				
Citrate of iron and quinine	..	..	..	30 grs.
Potassium iodide	..	..	..	30 "
Water	..	..	..	2 fl. dr.
Syrup	..	..	..	6 "
Mix.				

Professor Oscar Oldberg says that the above statement is too sweeping. Mixture B is at first only slightly unclear, but soon becomes darkened and very turbid; when the quantities of water and syrup are doubled, however, the mixtures are almost free from turbidity. Mixture A, in which the proportion of liquid compared with the quantity of the scale salt is twice as great as in B, is free from precipitate and of a greenish-yellow colour. The substitution of alcohol for about 25 per cent. of the water did not seem to affect the result in any degree; but when a greater proportion of alcohol was employed a reddish precipitate of iron-compound was the result, and a mass of salt crystals also separated. At the same time the total quantity of liquid was as limited as in B in proportion to the citrate of iron and quinine. The conclusion reached from the several experiments made was that 1 part of citrate of iron and quinine dissolved in water, or in water and syrup, together with an equal or greater amount of potassium iodide, will afford a satisfactory mixture if the quantity of water, or water and syrup together, amounts to not less than 30 parts; and that the use of alcohol in place of any portion of the water does not improve the mixture, but, instead, causes considerable turbidity and discoloration if used in a proportion exceeding 20 per cent. Mixture B remained greenish-yellow and almost clear, containing but a trifling quantity of light sediment at the end of a month.





**Notice to Retail Buyers:**—It should be remembered that the quotations in this section are invariably the lowest net cash prices actually paid for large quantities in bulk. In many cases allowances have to be added before ordinary prices can be ascertained. Frequently goods must be picked and sorted to suit the demands of the retail trade, causing much labour and the accumulation of rejections, not all of which are suitable, even for manufacturing purposes.

It should also be recollected that for many articles the range of quality is very wide.

#### 42 CANNON STREET, E.C., August 17.

AT the drug-sales to-day remarkably little business was done—in fact, buyers appeared to be at a premium. Brokers came and brokers went, but in nearly every case without effecting sales, and catalogue after catalogue was gone through with apparently only a slender transaction of business. The holiday-season and the excessive heat had, no doubt, contributed somewhat to the stagnancy of the fortnightly sales, but, whatever the reason, the fact remains that a record has been made. To give an idea of the sparsity of the calls we give below a list of the drugs for which there was absolutely no demand to-day, the bulk of them being either unbid for, or bought in by the brokers:—

Anatto-paste	Guaza
Balsam (Peru)	Gum arabic
Balsam (Tolu)	Gum gambutum
Buchu	Gum kino
Calabar beans	Gum mastic
Cassia oil	Gum olibanum
Chamomiles	Gum tragacanth
Chillies	Henbane
Chiretta	Irish moss
Civet	Jalap
Coca-leaves	Kousso
Coccyzus indicus	Lime-juice
Cod-liver oil	Manna
Colchicum	Menthol crystals
Colocynth	Nux vomica
Cubebis	Orange-peel
Cuttlefish-bone	Purree
Dragon's blood	Quassia
Elatarium	Saffron
Ergot of rye	Sandalwood
Eucalyptus oil	Scammony
Galangal	Senega-root
Galls	Squills
Gamboge	Tonquin beans
Guarana	Vermilion

Business on the open market is equally quiet, and the chemical trade shows no change. In short, a worse state of business it has seldom fallen to our lot to report upon.

**ALOE.**—Cape aloes at the auction sold at 24s. for good hard; fair, 23s.; ordinary soft to middling, 18s. to 20s. *Curacao* aloes sold for middling liver at 51s., and livery gourds at 48s.

**AMBERGRIS.**—Of 2 tins offered 1 was bought in at 40s., a bid of 30s. being refused, and another at 75s.

**ANISEED.**—Of a parcel of 142 bags 64 were said to be sold privately; the remainder were bought in at 23s.

**ANTIMONY.**—Fifty-four cases of Japan crude antimony were offered; 40 of these were said to be sold privately, and the remainder was bought in at 20l.

**ARECA-NUTS.**—Of 137 packages 33 sold, without reserve, at 10s. 6d. to 13s. This was apparently for very old stock,

being more or less wormy. Another parcel of 4 bags was sold at 8s.

**BALSAM (COPAIBA).**—Of 14 casks of fair-coloured thin to medium balsam, 1 sold at 1s. 6d.; the remainder was bought in at 1s. 7d. to 1s. 8d.

**CALUMBA.**—A large quantity was offered, but only 40 bales of bold, grey, partly-washed root sold at 14s. A number of parcels were bought in.

**CAMPHOR.**—Forty cases of refined Japan camphor were offered without reserve "for account of whom it may concern, with all faults," and all sold with good competition at 1s. 5d. to 1s. 5½d. This must be considered a splendid bargain for the purchasers, as it consisted of the Japan Camphor Company's make in sawn squares 48 to the lb., and the packages were simply damaged by sea-water.

**CANELLA-BARK.**—Eight bales of good pale bark, considerably broken, were bought in at 30s.

**CARDAMOMS.**—There was a limited supply offered, and nearly the whole was sold at good prices, considering that the quality was just about average. One parcel of fine-plump and white *Mysore's* sold at 2s. 9d.; split of about equal size and colour 2s. 1d. to 2s. 6d.; small to medium, white, sold at 2s., and the smallest at 1s. 4d.; natural brown fruit fetching 1s. 5d. to 1s. 9d. Of the few cases of *Malabars* offered all sold: medium in size and colour at 2s. 1d., and low brown at 1s. 3d. Seed sold at 1s. 4d.

**CASCARILLA-BARK.**—Fifteen casks of rubbishy stuff, dusty and dirty, sold at 21s.

**CASTORUM.**—Two boxes of unsorted were bought in at 85s., and of another parcel of 7 boxes wrinkled and skinny bags, 6 sold at 25s.; 61s. was given for small, and up to 90s. for better sorts. One box was bought in at 100s.

**CUMIN-SEED.**—Of 13 bags offered, 3 of clean seed sold at 27s. 6d.

**GUM AMMONIACUM.**—Of 14 cases offered at the sale, 9 of good clean sold at 40s., fair almondy at 38s. and poorer sorts at 25s. to 30s.

**GUM BENZOIN.**—Of *Sumatra* gum a large supply was offered, but only 12 cases sold at 5l. 15s. to 5l. 17s. 6d. Of a parcel of 32 cases *Siam* gum 6 of the better sort sold at from 15l. 10s. to 28l. 10s.; 2 other lots of inferior quality sold at 60s. and 80s. Of another parcel of 82 cases only one sold at 6l., the remainder being bought in. This was, indeed, the fate of nearly all the gum offered at the sales on Thursday, very little business being done.

**GUM MYRRH.**—Of a parcel of 40 packages nearly all sold; the prices ranging from 30s. and 45s. to 80s.; 95s. to 102s. 6d. for better sorts.

**HONEY.**—Three casks of Jamaica honey, thin but dark clear liquid sold at 25s., and 1 of thin dull sort at 26s. Parcels of Chilean and New Zealand honey were also offered, but none sold.

**IPECACUANHA.**—There was a fair amount offered, but practically no demand, and of 103 bales of *Rio* root only 4 sold, 3 at 6s. 5d. to 6s. 8d.—this being fairly bold root, partly stemmy—and one that was much damaged sold at 4s. 11d. A package of Cartagena sold at 4s., without reserve, and 4 others, badly damaged, at 3s. 9d. to 4s., leaving 38 unsold. The prices for normal root are decidedly easier.

**KOLA-NUTS.**—At the sales 35 packages were offered, but only 2 sold at 4d.; the remainder were all bought in.

**MUSK.**—There was very little business done in auction, one case of fine Tonquin with thin skin and blue underskin selling at 71s., and 8 tins of dry pods with very thick and hairy skin brought 42s. 6d., a worse lot 30s.; trimmings were sold at 6d.

**OIL (CASTOR).**—Fifteen cases of nice, white bleached Italian oil sold at 2¾d. East Indian oil was bought in at the same price.

**OILS (ESSENTIAL).**—At the auctions to-day there was a large variety of oils offered, but business was especially stagnant, and there being no demand everything offered was bought in.



**ORRIS-ROOT.**—Thirty-eight packages were shown at the auctions, but only one sold, clean and partly dry Mogadore at 35s., the remainder were bought in. White powder was bought in at 102s. 6d., and grey at 90s.

**RHUBARB.**—It was a tolerably fair supply of rhubarb which was on show on Wednesday, but Thursday brought very little demand for it. Only one broker succeeded in disposing of the larger part of his stock, namely 16 cases of Shensi, round root, good solid fracture selling at 1s. to 1s. 1d. and small but equally compact root at 11½d. Some bold spongy root also sold at the last mentioned figure. Bold flat Canton sold at 11½d. to 1s. 2d. There was some very nice high-dried rough-coated Canton on show, but it failed to meet with a purchaser.

**SARSAPARILLA.**—A fairly large quantity was offered at the sales to-day. Two packages of Lima sarsaparilla sold at 9½d. Of another parcel of 8 serons, 4 sold at 1s. 4d., the remainder being bought in at 1s. 5d. A parcel of 12 cases Jamaica sarsaparilla also sold at 1s. 2d. to 1s. 4d.

**SENNA.**—A good supply of Tinnivelly was represented in the sales, but comparatively little of it was available for retail sale, and the small lot of 7 cases which there was of that sold at 3d., this being good bright green leaf, almost bold. The rest was manufacturer's stuff, poor in colour and size, and sold at from ¾d. to 1½d., most of this being damaged. *Alexandrian* senna and pods could not sell at all.

**SOY.**—Forty-one casks of China soy were offered at the auctions to-day, "for account of whom it may concern." All sold at 10½d., one lot reaching 11d.

**TEA.**—The tea market is a shade easier all round, and rather lower quotations for common tea have been made this week. New season Moning has sold down to 5½d., and clean semi-leaf Kaisow at 5½d., at which prices there is more inclination to do business in the country. Old Capers were a trifle firmer on Wednesday, owing to the announcement that importers had come to the end of their old season's teas, though as low a price as 3½d. was made for very common tea. Assams are weak for lower grades, which have been done at 5½d. and 6d. per lb., but they are not wanted at the moment, and look like going still lower. Finest Darjeelings, on the other hand, are wanted, and have sold freely between 2s. and 2s. 6d. Ceylons are slightly easier, useful tea selling at 6½d. per lb.; but the demand is fairly good, and the tone better than that for Indians.

**TURMERIC.**—About 200 bags were offered, but only 10 were sold without reserve at 19s.

**VANILLOES.**—Of those offered at the auctions a small part sold: fair fresh dark, slightly crystallised, 6½ to 7½ inch, 8s. 6d. to 9s.; fine cottony, 8 to 8½ inch, 15s.

**WAX (BEES').**—Of 173 packages *Jamaica* wax, 14 sold; pale to dark at 7l. 15s., and best good coloured at 8l. Another parcel of 9 casks of fair and hardish wax sold at from 7l. 15s. to 8l. 2s. 6d. Of 29 parcels offered, 16 found buyers at from 7l. 12s. 6d. to 8l. 5s. *Australian* wax: Of 10 cases, greyish in colour, 4 sold at 7l. to 7l. 2s. 6d., and 1 case of white to yellowish grey at 6l. 15s.

### THE LIVERPOOL MARKET.

**ANISE.**—*Chilian* new crop has been selling freely, and 18s. has been taken for one parcel from the quay.

**GUM ARABIC.**—An easier tone prevails, and 30 serons poor Soudan sorts have been sold at 45s. There is now more inquiry at the lower rates.

**KOLA-NUTS.**—Sales of parcels just landed at 2½d. to 4d.

**OIL (CASTOR).**—The quay has been cleared of cheap lots, and the value of good seconds *Caleutta* is now 2¾d. to 2⅞d. Holders are talking of higher rates. *French* first pressure is 2½d. to 2⅞d.

**SEED.**—Canary easier; good bright is 52s. 6d. to 55s. Fenugreek: A fresh arrival of *Alexandrian* brown has sold at 8l. 10s.

**WAX (BEES').**—Firm; 15 sacks mixed *Chilian* selling at 6l. 17s. 6d. A parcel of African (Gambia) realised 7l.

### THE NEW YORK MARKET.

(From our Correspondent.)

NEW YORK, August 8.

THE market generally continues dull and flat, the general financial stringency being assigned as a primary cause for this condition. In one or two lines—as quinine, tartaric acid, and cream of tartar—some sales have been negotiated on spot cash basis, a suitable concession being made for this deviation from customary trade usages here. On these terras quinine has been sold at 17c., though in the regular channels and on the usual terms 18c. to 18½c. is wanted, and is paid, for jobbing quantities. *Mexican saffron* (safflower) has been reduced to 25c., at which some movement into consumptive channels is noted. *Brazil wax* is inquired for, but the stock is limited, and holders firm at 18c. for No. 1, 15c. for No. 2, and 9½c. for No. 3. *Cascara sagrada* was brought up to 6½c.; 10,000 lbs. have been sold, partly for export, and at this writing 7c. is asked. Twenty-nine cases of *Maracaibo balsam copaiba* is to hand, but as yet unsold. *Cream of tartar* has been sold at less than the manufacturers' quotations of 19c. to 19½c., though not in a large way. Wayne County reports are rather favourable as to the outlook for peppermint. The market is quiet at \$2.70 for HGH. Senega has been freely exported at 38c., or a little less. The large business done has helped the market here somewhat, and 40c. is the ruling quotation on the spot.

### THE DUTCH CINCHONA-SALES

(From our Correspondent.)

AMSTERDAM, August 10.

THE cinchona-auctions to be held in Amsterdam on August 31 will consist of 365 cases and 6,185 bales (about 553 tons), divided as follows:—From Government plantations, 341 bales (about 32 tons); from private plantations, 365 cases and 5,844 bales (about 521 tons). This quantity contains—Of druggists' bark: *Succirubra*—quills, 250 cases; broken quills and chips, 55 bales 115 cases; root, 57 bales. Of manufacturing-bark: *Ledgeriana*—broken quills and chips, 4,503 bales; root, 834 bales. *Hybrides*—broken quills and chips, 646 bales; root, 78 bales. *Officinalis*—broken quills and chips, 12 bales.

A DIASTATIC FERMENT EXISTS IN THE BLOOD, which changes starch into dextrose, and not maltose, as the saliva and pancreatic-juice ferments do.

**PHARMACOPEIA FOR CANADA.**—Writing in regard to the proposal to have a Pharmacopœia for Canada, Mr. Henry R. Gray, of Montreal, President of the Quebec Pharmaceutical Association, says:—"The very favourable critique of the new U.S. Pharmacopœia published in THE CHEMIST AND DRUGGIST of London, received in town yesterday (July 11), almost makes one hesitate as to which Pharmacopœia we ought to adopt." The Canadians' near neighbours in the States are surprised they should think of anything else than the U.S. Pharmacopœia.

THE clergyman was new to the district—an American one—and had been invited to officiate at the funeral of a prominent resident. As he knew nothing about the career and accomplishments of the deceased, he was to be assisted by a farmer of the neighbourhood, who was something of an exhorter. The relatives had expected that the services should not begin until Mr. J., the farmer, had arrived. He was long in coming for some reason, and the clergyman began to grow weary. He called one of the family and asked him if he knew where Mr. J. was. "He's come now," said this person. "Where is he?" asked the clergyman. "Downstairs," came the response, "wiping his gums on the door-mat!" The thought of the reverend agriculturist "wiping his gums on the door-mat" filled the Yankee clergyman first with horror, and then with almost uncontrollable amusement. It did not occur to him at first that "gums" in that part of the country meant rubber over-shoes.





### Memoranda for Correspondents.

*In letters for publication correspondents are requested to express their views as concisely as possible.*

*Correspondents should write on one side of the paper only, and devote a separate piece of paper to each subject of inquiry.*

*The name and address of the writer should accompany all communications, with, if desired, a distinctive nom-de-plume.*

### Backbone Wanted.

SIR,—In your leader of this day's date you very properly comment on what you term "Shady Business."

The reason otherwise intelligent men are such geese as to barter their commercial reputation for such trumpety profits is this. In the first place, they consent to sell other people's goods at a reduction of profit amounting to 33 per cent. less than published price, foolishly expecting thereby to bribe the public. Finding no corresponding result, they tire, and then seek to substitute other goods for those asked for—a most suicidal policy. Buying direct 5*l.* of Seigel's syrup, they obtain it at 11*s.* 6*d.* per dozen net, and then proceed to retail it at 1*s.* per bottle, well knowing if a medicine were offered them at the price of 11*s.* 6*d.* per dozen, and the label said, "To be bought of all chemists at 1*s.* per bottle," they would not handle it, on the ground of non-sufficient profit. While gentlemen have no backbone, and lower their dignity by such huckstering habits, this sort of corruption will always be with us. On this experience qualifies me to speak: In non-central districts you can earn no more at the cost price than the full. I tried the former for six years, and I have abandoned it for eight years, and find no difference in the return of profits to the income-tax assessor.

A still more reprehensible practice is this. Notorious cutters have an immense quantity of one pill (generally pil. rhei co.), and sell them out labelled according to order—viz., "Pil. Rufi," "Antibilious Pills," "Pil. Cochia," "Liver-pills," "Head and Stomach Pills," "Compound Rhubarb Pills," "Pennyroyal Pills," &c.

Tincture of rhubarb is often without the saffron (*vide* this week's CHEMIST AND DRUGGIST, where you report that a Co-operative Store was the offender). Let every chemist gird himself up and do the thing that is right and just, and increase his price if the demand will not justify the low percentage.

In Derby just lately all the booksellers and journal-retailers have agreed and signed for a 25*l.* fine for selling under price; and I am informed by a friend of mine engaged in travelling in the book-trade that it has not lessened the demand in the least. Glasgow is trying to follow suit with only one dissentient, so there are distinct signs of the coming cessation of the game of "Beggar my Neighbour out of Doors."

255 Well Street, Hackney,  
N.E., August 12.

ROBERT OWEN FITCH.

### Dispensing Veterinary Medicines.

SIR,—I had occasion to be in the country the other week, and found that the "general merchant" there, who holds no pharmaceutical qualification, dispenses the veterinary prescriptions. One prescription sent over was for a lotion, which was composed of Fleming's tr. of aconite, tr. of opium, tr. of arnica, and camphor, &c. When dispensed it was returned with no label whatsoever. How is this allowed?

Yours truly, CHEMIST. (99/42.)

[It is not legal. Why not report the case, with full details, to the Pharmaceutical Society?]

### Medical and Pharmaceutical Novels.

SIR,—It seems strange that in the comments upon "Le Docteur Pascal," Gustave Flaubert's masterpiece, "Madame

Bovary," should have been overlooked. Flaubert was the father of the realistic school, and was himself connected with medicine and pharmacy—in fact, his father was a distinguished surgeon, and all his family were in the circle of medicine. In this novel his knowledge of the subject and the habits of his characters are shown in a marked manner, and his description of the tragic end of Madame Bovary by poisoning with arsenic is a toxicological study.

August 15.

Sincerely yours,

VERITAS. (100/7.)

SIR.—Although only Mr. Williams wrote you as to your very interesting review of "Le Dr. Pascal," I think many of the craft will appreciate the ideas therein stated, and I venture to think that there lies behind the counter of almost any pharmacy an amount of virgin soil the cultivation of which, in a literary sense, would receive ample appreciation on the part of the great British public.

It is in every chemist's own ken that, in spite of modern destruction of many old-fashioned ideas about our business-methods, there remain traces of that feeling of mystery, of something behind the scenes, which attracts the mind of many to an evident interest in our calling. Personally, I believe there is sufficient of some sort of romance about our lives to merit the attention of the novelist, and the interest taken by the public in such scraps as are vouchsafed to them proves the case. I have never failed to notice when a case of suicide or poisoning occurs, that people of most unimpaired (to coin a word) appearance make inquiries and betray a great interest in the details: perhaps we may have something from Mr. R. L. Stevenson yet, or Mr. Shorthouse. The few writers who have ventured into these pharmaceutical regions seem to have got no further than a mild satire, and seem to prefer the name and style of apothecary to our more modern description.

Among the weekly amenities of this column we are accustomed to call one another narrow-minded: can it be that the novelist has come across a number of the *C. & D.* and embraced that opinion as an official one?

Yours,

PER ARDUA. (99/32.)

SIR.—Is not "Japhet in Search of a Father," by Δ (Dr. Moir, Inveresk), a novel in which the hero is a chemist and druggist? My impression is that it is so; but as it is about forty years since I read it, my impression may be somewhat faulty.

I am yours, &c.,

D. H. B. (100/60.)

[Other boys of forty years ago will scarcely submit to this cool annexation of their old friend Captain Marryatt's title in favour of a Scotch doctor.]

### Perforated Medicine-stamps.

SIR,—Has any attempt ever been made to have a perforated gummed p.-m. stamp in place of our present inconvenient style? One would imagine that so lucrative a source of revenue would be worth this consideration.

Yours, &c.,

PER ARDUA. (99/38.)

### Dodd's Guide Scores Again.

Another successful candidate (1/29) at the July Preliminary writes:—"I used nothing but the book you publish—viz., 'Guide to Preliminary Examination.' Kindly forward as speedily as possible your 'Art of Dispensing'; on the principle, we presume, formulated in the old advertisement: "If you like the pickles, why not try the sauce!"

### The Pharmaceutical Examinations.

100/6. *Pharmacien Anglais* thinks the Major examination is not what it should be. He would like that those subjects in which a candidate has passed should be omitted, and other subjects gone into more deeply.



## Glass-lined Cylinders for Aerated Waters.

SIR.—We observe in the last issue of your journal an announcement of the above "invention." One would imagine from the notices in various papers that this was a new improvement; but we may point out that so far back as 1877 we constructed glass-lined cylinders, which were exhibited by us at the Paris Exposition of 1878. The innovation, however, not being favourably received by the trade, we discontinued their regular manufacture; but we are at all times prepared to quote for and make these glass-lined cylinders where required.

The recent report of the *Lancet* upon metallic contamination shows that the same is impossible with a properly-constructed cylinder lined with pure grain tin free from any admixture of lead or other alloy whatsoever; but firms who have not had the advantages we possess as old-established makers of soda-water machinery find considerable difficulty in properly lining cylinders thus; consequently, where extreme purity is required, recourse has to be had to silver and other materials, such as the glass linings under notice. All cylinders made by us are coated with pure grain tin in this manner, and contamination is avoided.

We do not gather from your notice of the apparatus the material of which the agitator working in these glass-lined cylinders is composed. Silence on this point is significant—the use of a metallic agitator will more than counteract the benefits accruing from the glass lining, and if the agitator is protected by a coating of silver, why cannot the inside of the cylinder be similarly protected?

Yours faithfully,

BARNETT & FOSTER.

## LEGAL QUERIES.

*Immediate information on pharmaco-legal matters is available in "Pharmacy and Poison Laws of the United Kingdom," Alpe's "Handy-book of Medicine-stamp Duty," and THE CHEMISTS' AND DRUGGISTS' DIARY page 152 et seq.*

98/28. *J. T.*—The law does not allow the executors of a deceased chemist and druggist to carry on his business for any period without a qualified assistant.

99/69. *Inquisitive* asks:—"Can anyone monopolise the word 'lung' for a speciality, as 'lung-drops,' 'lung-syrups,' 'lung-lozenges,' &c., even though such a title had been registered some years ago?" We are confident that no such trade-mark could be registered now as a new mark. Nor would it be registered as an old mark if the registrar had reason to believe that it had been used by three or more persons. We do not know of any such mark having been registered.

100/34. *Z.* asks:—"Is codeina a poison under the Pharmacy Act?" Yes; all poisonous vegetable alkaloids and their salts are in the first part of the schedule.

100/19. *Alexis.*—Two sticky fly-paper patents are those of Mr. Wilson, No. 10,781, 1887, and Messrs. Tunbridge & Wright, 10,767, 1889. Another by Mr. Strong, 8,501, 1893, has been taken, but we do not know whether the specification has been published. There may be others.

100/53. *Mac.*—The law does not allow you to sell any quantity of rectified spirit unless you hold a 10% 10s. spirit-dealer's licence. But the Commissioners allow chemists to sell up to 8 oz. to medical and scientific customers for medical and scientific purposes. The sweets and methylated-spirit licences do not in any way authorise you to sell rectified spirit. In fact, the latter would prevent your getting a spirit-dealer's licence except under special conditions.

## MISCELLANEOUS INQUIRIES.

*The Editor replies to queries of general interest, in the order in which they are received. Replies are inserted according to the space available. Postal answers cannot be supplied.*

*Back numbers, containing formulae, educational or other specific information can be obtained from the Publisher.*

87/37. *Assistant.* Ink for Writing on glass is made by mixing together a fluoride (ammonium or calcium) and the strongest sulphuric acid obtainable—1 part of the fluoride to 2 parts of the acid.

93/38. *An Apprentice* (London) puts this question to us: What prospects there are in becoming An Hospital Dispenser? It depends upon the locality and the dispenser. Some who have attained that position live comfortably, make love to the nurses, and finish up by marrying one of them and starting in business in the town with all the support of the hospital medical attendants behind them. Others—in London, for example—become lecturers on pharmacy, examiners, authors of papers, presidents of the British Pharmaceutical Conference, Bachelors of Science, or Fellows of the Royal College of Surgeons, and all this with fairly good salaries. The prospects altogether depend upon the man: golden apples do not hang about ready to drop into the mouths of the ambitious—they must be striven for.

95/45. *Amerik.*—There is a Pharmacy Law in Oregon, passed fully two years ago. See THE CHEMIST AND DRUGGIST, April 11, 1891, page 500.

93 62. *H. G.*—There is no book published on the manufacture of preparations such as Creolin; but we may tell you that, according to Mr. Gerrard, something like it can be made by saponifying the cresylic compounds of coal tar with resin soap. See THE CHEMIST AND DRUGGIST, March 15, 1890, page 352.

98/45. *Odorata.*—"Scientific Mysteries," 1s., published at this office.

98/39. *Sigma.*—The essence of musk which (according to Cooley) "has received the approval of Royalty, both in these Kingdoms (*sic*) and on the Continent," is made as follows:—Musk (from the bladder rubbed very small), 5 oz.; civet, 1 oz.; essence of ambergris, 1 pint; spirit of ambrette, 1 gall. Cork close and tie over with bladder, and digest with frequent agitation in a warm place (in sunshine in the summer) for two months. Decant and filter.

96/60. *C. Fowler.*—The Best Test for Alcohol? What for—purity or strength? The specific gravity and absence of solid matter indicate strength, and freedom from coloration on agitation with caustic soda and non-reduction of ammonio-nitrate of silver are as good tests as any for purity. See the British Pharmacopœia, under *Spiritus rectificatus*.

91/31. *P. C.*—For Chillie Paste see *C. & D.* February 13, 1892, page 249.

97/48. *Iodine.*—An efficient remedy for Spongy Gums is Tincture of Myrrh and Borax containing rhatany. This should be used morning and evening, and, at the same time, compound syrup of hypophosphites should be taken as a tonic.

94/45. *Archer* puts a Dental Difficulty—viz., "How to save defective teeth which have pus sacs at the apex of the fangs." It is somewhat difficult to advise the treatment for suppurating teeth without first seeing the teeth and finding



out their history. Our experience is that it is seldom wise to attempt the treatment of compound-rooted teeth, especially if they are in a chronic suppurated condition. The front teeth as a rule yield more readily, but even they, if the chronic condition is established, are sometimes most obstinate, especially the lateral incisors, and sometimes they altogether refuse any kind of treatment. In all kinds of suppurated conditions of the teeth, the only chance for successful treatment is first to open well into the centre of the tooth, extract all the dead nerve, open up the root-canals, and wash out with warm water—or, better, permanganate of potash—and then inject bichloride of mercury, 1 in 1,000, or peroxide of hydrogen. Next dress the canals with any of the following:—Creosote, eucalyptus oil, iodoform paste, carbolic acid, or any of the essential oils. Counter-irritation with iodine is also necessary. There is no rule in the treatment of these kinds of teeth. What will cure one case will have no effect upon another. If the chronic state has been long established, there is little hope for the tooth ever being well.

97/47. *U. S. A.*—The reply that has always been given by persons acquainted with American pharmacy to questions like yours is that there is no special demand in the United States for chemists trained on this side; that, other things being equal, the native drug-clerk has a better chance.

99/20. *W. H. L.*—A combination of musk and bergamot with cassia will yield a perfume similar to that you want. Messrs. Brownley & Co., who advertise in this journal, will no doubt make a similar soap for you.

99/60. *W. H. P.*—"Mithridate" is the ancient "theriacum." It was regarded as a universal antidote. A formula for it last appeared in the London Pharmacopœia of 1746. It was a confection of sixty-one ingredients, opium being the most active, and the rest comprising all sorts of spices, flavourings, and costly drugs. The proportion of opium averages 1 in 80. The compound is still prescribed on the Continent occasionally, and formulae are to be found in various recent foreign Pharmacopœias.

84/70. *Nemo.*—The sample of Infants' Carminative which you send seems to be something like this, which you will find very suitable and may be given in the same dose:—

Magnes. carb. . . . .	gr. xx.
Tr. lavand. co. . . . .	ʒss.
Syr. zingiber. . . . .	ʒij.
Theriac . . . . .	ʒij.
Aq. anethi ad. . . . .	ʒiiss.

Some chemists add a very small quantity of some preparation of opium, but this we have strong objections to; if, however, you wish anything of the sort, then substitute syr. papaver. for the treacle.

75/41. *Nobilis.*—The sample of Jaundice-cure you sent had fermented, and reached us in such a condition that it is impossible to make anything of it. Send another sample, as freshly prepared as possible.

94/19. *Piper alb.*—The sample of Agricultural Oil for both external and internal use is one of a numerous family going under the name of Black Oils. You will find many formulae in back numbers (see particularly page 872, June 24, 1893, and page 775, June 3, 1893). The dose for internal use varies from one teaspoonful to two tablespoonfuls, according to the animal to be dosed.

91/41. *Novice.*—In the formula given for a Spiced Vinegar, 50/74, June 24, page 872, the quantity of diluted acetic acid (1 to 6), Orleans vinegar, or best English malt vinegar should have been 4 pints. This makes a very superior "pickling spiced vinegar," which invariably gives satisfaction, and has a much better flavour than any "commercial spiced vinegar" we have met with. If you wish a "concentrated spiced vinegar" which will stand dilution with 2 parts malt vine-

gar, such as you buy, then macerate the solids with only half the quantity of either the diluted acid or the vinegars. By increasing the strength of the diluted acid you obtain a spiced vinegar which will require simply dilution with water.

82/16. *Amerik.*—Liq. Bismuth. Co.—The formula you send seems a good one, although rather stronger than we should care to put up as a stock medicine for general use. To obtain a nice elegant preparation the addition of glycerine would be an improvement. Suppose you modify it somewhat after this manner:—

Tr. nuc. vomice. . . . .	m3j
Spt. chloroformi. . . . .	m100
Ac. hydrocyan. dil. . . . .	mxxvi.
Morph. hydrochlor. . . . .	gr. 1j
Pepsin. (soluble) . . . . .	gr. viij.
Glycerini . . . . .	ʒiv.
Liq. cocci. . . . .	ʒss.
Liq. bismuth. et am. cit. ad. . . . .	ʒiiss.

Rub up the morphine and pepsine with the glycerine in a mortar, add the other ingredients; stand for a week, and filter through paper moistened with a mixture of equal proportions of glycerine and water.

96/7. *Odour.*—For a Perfume similar to sample sent, try this:—

Oil of lavender . . . . .	1 oz.
" bergamot. . . . .	½ "
" neroli . . . . .	1 drachm
" sandalwood . . . . .	½ "
Otto of rose . . . . .	½ "
Distilled water . . . . .	10 oz.
Rectified spirit . . . . .	50 "
Powdered orris-root . . . . .	2 "

Macerate for a week, and filter through paper moistened with proof spirit.

The reason for delay was our wish to do the best we could with your sample. You will find a formula for *Mona Bouquet* at page 228, February 11, 1893.

101/3. *Berks.*—Bologna Phosphorus was an old discovery, similar in principle to the luminous paint of which much was made a few years since. It was made by roasting in a crucible, at a white heat, cylinders composed of sulphide of barium 5 parts; charcoal, glue, and flour, of each, 1 part. After exposure to diffused light this compound is luminous in the dark.

89/11. *E. V. Z.*—Ess. Violæ Conct. (1-15) for Syrup.—Take 1 lb. violet-flowers and macerate 12 hours with 10 oz. of a mixture of equal parts rectified spirit and water. Strain with strong pressure, and preserve this liquid. Then pack the marc in a percolator and exhaust with warm water; evaporate the percolate to 4 oz. Add this to expressed liquid; stand for three days, and filter.

107/94. *Wec.*—The Fever and Colic Drink seems to consist principally of the following ingredients. You will find the proportions given suitable:—

Tr. opii . . . . .	ʒvj. to ʒj.
Spt. aether. nit. . . . .	ʒj.
Tr. acanit. . . . .	mxx. to mxxv.
Aquam ad. . . . .	ʒiv.

For fever, one-half night and morning. For colic, give all for a dose, and repeat in two or three hours if necessary. One dose is generally found sufficient, especially if it is given in warm gruel.

The Powder for Improving the Appetite in Horses:—

Ferri sulph. pulv. . . . .	ʒj.
Cassia pulv. . . . .	ʒss.
Cort. quercus pulv. . . . .	ʒj.
Sal. commun. . . . .	ʒij.

M.

From a dessert to a tablespoonful three times a week.

The "Veterinary Counter Practice" gives many useful formulae and much valuable advice as to disease and treatment. Do you possess a copy?



20 HIGHEST AWARDS.

# Pears' Soap

Soap Makers  
by Appointment to



H.R.H.  
The Prince of Wales.

RETAIL PRICES.			Per Dozen.	WHOLESALE PRICES.
	6d.	SIZE, unscented	- - -	4s.
	1s.	„ all shapes, Washing or Shaving		8s.
	1s.6d.	„ Ditto ditto		12s.
	2s.6d.	„ (The Washing Tablets are perfumed with Otto of Roses)		20s.
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	TRANSPARENT GLYCERINE	2s. per Box of 3 Tablets	16s. Per dozen Boxes.	

**DISCOUNT of 20 per Cent.**  
On all ORDERS of NOT LESS than **£5.**

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No Dealer in the Kingdom, "Wholesale or Retail," for any quantity whatever obtains more than the above **20 PER CENT.** Discount.

(Signed), *A & A Pears, Ltd.*  
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OILS BAY, CARAWAY, CLOVES, CUBEBS, PEPPERMINT, SANDAL,  
SASSAFRAS, SPEARMINT, TANSY, WINTERGREEN,  
WORMWOOD AND MANY OTHERS.

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for a shop such as the one you occupy unless you take the advantage of stocking every available inch of space with good selling lines which will pay you to handle? It is no use having a shop in a good position, and, as a matter of fact,

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for one at all unless you study this matter. For instance, RICHARDSON'S PILLS are a never-failing line, a source of satisfaction to yourself and your customers; so are their CAPSULES, of which you can have samples for asking.

# STOP PAYING RENT

for room to stock useless and unsaleable imitations of first-class articles. They may be cheap. You have heard the old saying, "Cheap and nasty." We could a tale unfold of bitter disappointment, grief, and anger told by some of our friends who have been persuaded to try some of the marvellous productions sent out by some makers. Deal with **RICHARDSONS—RICHARDSONS OF LEICESTER**, and you will have the rent always ready, and the wherewithal to

# TAKE A GOOD REST AT THE SEASIDE!





# BICARBONATE OF SODA,

REFINED AND RECRYSTALLIZED.

PURE AND CHEAP.

## ANALYSIS.

Bicarbonate of Soda	...	...	...	...	97.20
Mono Carbonate of Soda	...	...	...	...	1.90
Sulphate of Soda	...	...	...	...	trace
Chloride of Sodium	...	...	...	...	.035
Moisture	...	...	...	...	.82
Insoluble	...	...	...	...	nil

# PURE ALKALI,

GUARANTEED 58 DEGREES.

EQUAL TO 98 PER CENT. OF CARBONATE OF SODA.

Most economical form of Soda for the use of Printers  
Bleachers, Dyers; Glass, Paper, and Soap Makers.

## CONCENTRATED CRYSTAL SODA

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By far the Purest and Cheapest form of WASHING SODA.

Only 1 lb. of Concentrated Crystal Soda required to do the work of 2 lbs. of Washing Soda.

# SODA CRYSTALS

OF THE FINEST QUALITY.

Also BLEACHING POWDER.

# BRUNNER, MOND & CO., LIM.

*Manufacturers of Soda by the Ammonia Process,*

**NORTHWICH, CHESHIRE.**





# A SUBSTITUTION CASE.

## CARTER'S LITTLE LIVER PILLS

### IN THE HIGH COURT OF CHANCERY,

On the 5th inst., before Mr. JUSTICE ROMER, was tried the Case of CARTER MEDICINE COMPANY *v.* JOSEPH KNIGHT, Chemist, Bath.

Evidence having been adduced to show that, being asked for a vial of CARTER'S LITTLE LIVER PILLS, the defendant had supplied Pills not of the Carter Medicine Company's manufacture, Mr. JUSTICE ROMER gave Judgment for the Plaintiffs, *with costs*, saying:—

"I need only say I believe the evidence for the plaintiffs, and, so far as the defendant in the box has contradicted the testimony of the two witnesses, I do not believe him. There will be an injunction against him, to restrain the defendant, his servants, workmen, and agents from selling or offering for sale any pills not manufactured or supplied by the plaintiffs, under the style or name of 'Carter's Little Liver Pills,' and he will pay the costs."

THE CASE WAS FULLY REPORTED, WITH THE EVIDENCE ON BOTH SIDES, IN  
"THE CHEMIST AND DRUGGIST," OF AUGUST 12.

The Name, CARTER'S LITTLE LIVER PILLS, is the Trade Mark, and the CARTER MEDICINE COMPANY takes proceedings in every instance where the rights in this Trade Mark are infringed.

CARTER MEDICINE CO., 46 HOLBORN VIADUCT, LONDON, E.C.



MAKE A POINT, and don't fail to write for NEW LIST post free.  
 MEDICAL AND DRUG JOURNALS ASSIGN TO  
**WAND'S**  
**SOLUBLE PEARL-COATED PILLS**

The Highest Praise for Elegance of Appearance. Speedy Solubility.

Purity of Ingredients. Absence of Injurious Varnish.

**STUDY - and - NOTE**

Economy by Ordering 10-gross Lots,

The Saving by doing this.

**LOWER PRICES.**

TERMS:—NET FOR CASH WITH ORDER, Carriage Paid in Great Britain and Ireland.

Equal in every way to any High-Priced Pill produced. Finish Unsurpassed. Best Drugs Guaranteed.  
*Private Formulæ Quoted. Suppositories, Pessaries, Cachets, Bougies, Compressed Tablets.*

**WAND, Pearl-coated Pill Factory, LEICESTER.**

**BEECHAM'S TOOTH PASTE.**

All Chemists, Druggists, and Stores should Stock this new article, which is being well advertised, and, as it is a really good speciality, will shortly be in great demand.  
 It is put up in collapsible tubes, retail price 1/-, and can be obtained from any Wholesale House.

**BEECHAM'S PILLS**

The most saleable Patent Medicine in the market.

In Boxes 9½d., 1s. 1½d., and 2s. 9d. each.

HOME RETAILERS desirous of exhibiting Iron Tablets, Showcards, or Dummies, and wishful to have a good supply of Handbills, Beecham's Oracles, Music, &c., are requested to notify their requirements to the Proprietor,

**THOMAS BEECHAM, St. Helens, LANCASHIRE.**



London International and Universal Exhibition, 1884, Gold Medal Awarded for our Pharmaceutical Preparations.  
Calcutta Exhibition, First-class Certificate and Two Prize Medals Awarded for our Pharmaceutical Preparations.

# HEWLETT'S MIST. PEPSINÆ CO. C. BISMUTHO.

Highly recommended in various forms of dyspepsia, having a direct action upon the mucous membrane of the stomach and intestines as a sedative. It can be administered with marked and almost instantaneous effect in the irritative form of dyspepsia, more especially when *pyrosis* is a conspicuous symptom, and pain occurs an hour or more after food. In simple neuralgic gastric pain following eating, occurring in feeble subjects, it is especially indicated, and even in *carcinoma* it has been used with great success in alleviating pain and vomiting.

In the dyspepsia of patients dependent upon some organic disease, and where there is a decided loss of nerve power, it is of singular service. Thus, for instance, a person after a meal complains of a peculiar gnawing and emptiness, with slight pain at the epigastrium, evident signs of general relaxation and loss of nerve power, clinical experience has shown that it is of great service as a tonic and stomachic. A portion of its value arises, it may be, from its action upon the spinal motor nerve centres. Be these things as they may, experience has abundantly demonstrated the value of the compound as a stomachic, anti-dyspeptic, and tonic, in general functional atony and relaxation, and in the various forms of dyspepsia, constipation, or diarrhoea, connected with atony of the visceral muscular coat, the Mist. Pepsinæ Co. c. Bismutho is a very valuable remedy. In the *exhausting purging of Phthisis*, accompanied with night sweats and restlessness, Dr. MATHEWS, of Nantwich, has used it with marked and appreciable effect.

Price (in England) 10s. 6d. per pound.

Packed (for Dispensing only) in 10-oz., 22-oz., 40-oz., and 90-oz. Bottles.

## LONDON MEDICAL RECORD REPORT.

MISTURA PEPSINÆ COMPOSITA CUM BISMUTHO.

"This combination of Messrs. HEWLETT'S is one which has been extensively tested, and with good results. It is justly popular in the profession as a very valuable and effective combination. It serves not only to improve dyspepsia, but to lessen the gastric pain and to facilitate difficult and painful digestion, without setting up any evils of its own. It is a very good crutch for persons of weak stomach to lean on."—January 15th, 1881.

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Established  
1843.

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Established  
1843.

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## THOMPSON & CAPPER'S DENTIFRICE WATER.

Sells well everywhere, its beneficent qualities being attested to by physicians in all parts of the world. (See Testimonials.)

In 1s. 6d., 2s. 6d., 4s. 6d., and 8s. 6d. Bottles.

## LOFTHOUSE & SALTMER, MANUFACTURING CHEMISTS, WHOLESALE & EXPORT DRUG MERCHANTS, HULL,

Manufacturers of Granular Effervescent Preparations. We shall be glad to give specially favourable quotations, and to send samples of our superior Nos. 1, 2, and 3 qualities of CITRATE OF MAGNESIA.

Importers of Cod Liver, Castor, and Olive Oils; Extra Super Essence of Lemon and Bergamot, Otto de Rose, and all



Essential Oils; Valentia Saffron; Vanillas; Fruit Essences; Carmine, Aniline Dyes; Bees' Wax, &c., &c.

MANUFACTURERS of Very Superior Flexible Gelatine Capsules of Balsam Copaiba, Cascara Sagrada, Castor Oil, Cod-liver Oil, Santal Oil, &c. Samples and Lowest Quotations per 1,000, or in Boxes for Retail, will be sent on application from either the Wholesale or Retail Trade.





The above are now supplied **ONLY**  
from 59 Gray's Inn Road, W.C., through  
the Wholesale Houses.

*E. Burgess Junr.*

**E. BURGESS, JUNR.,**  
Proprietor.

# **CAUTION!**

## **LION OINTMENT & PILLS.**

### **DISMISSAL OF ACTION.**

On the application of the Plaintiff, H. J. DEACON, in the action of  
DEACON *v.* BURGESS, the Judge has consented to the case being  
DISMISSED, Plaintiff paying all costs of Defendant Burgess.

The Trade is cautioned that the only Genuine Lion Ointment  
and Pills are those manufactured by E. BURGESS, Jun., and  
bearing the Address—

**59 GRAY'S INN ROAD, W.C.**  
**ALL OTHERS ARE SPURIOUS.**

See Mr. Justice Kekewich's decision, as reported in "THE CHEMIST AND DRUGGIST" of Dec. 24, 1892.



# MRS. WINSLOW'S SOOTHING SYRUP

FOR CHILDREN TEETHING.

Greatly facilitates the process of Teething, by softening the Gums, reducing all Inflammation;  
will allay ALL PAIN and spasmodic action, and is

**SURE TO REGULATE THE BOWELS.**


Depend upon it, Mothers, it will give rest to yourselves and

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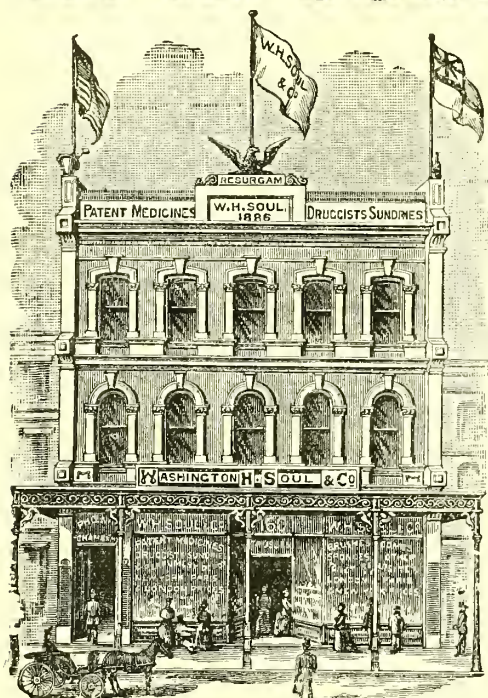
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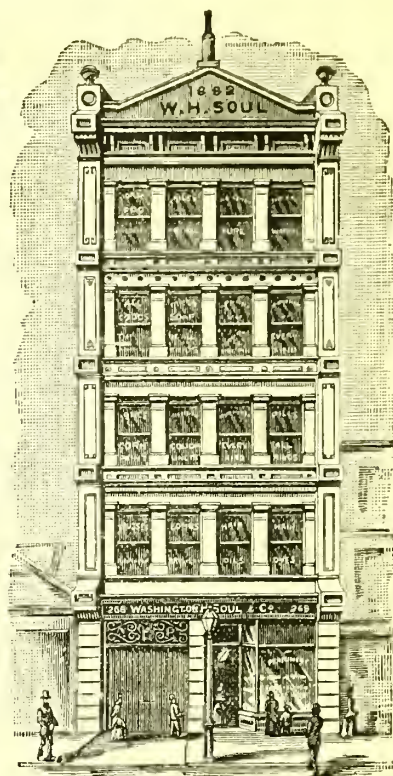
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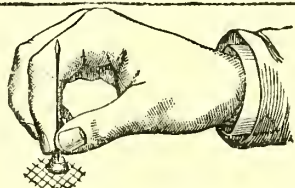
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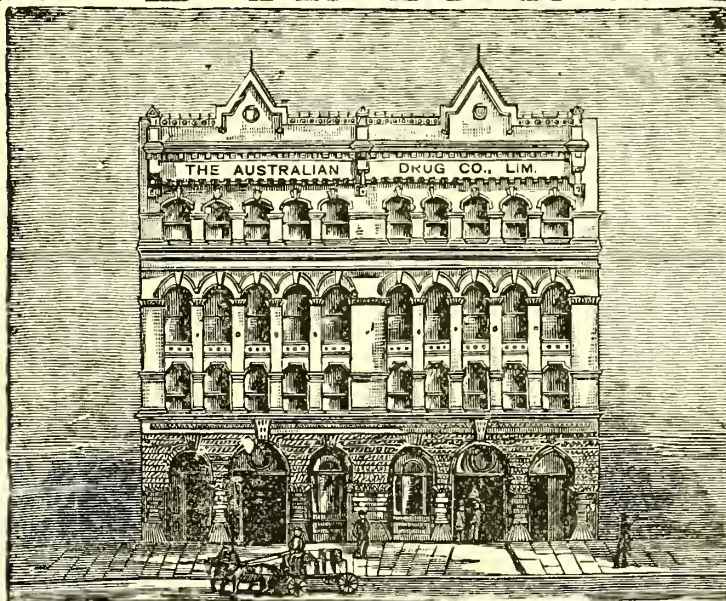
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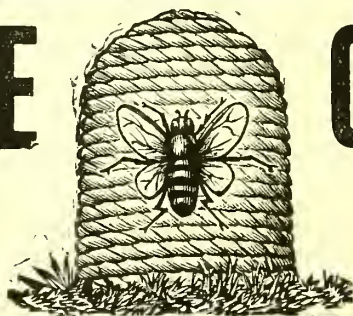
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Fifteen per cent. acid carbolic. Tins bear no name, only "Acme Brand."

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(Extra large size.)

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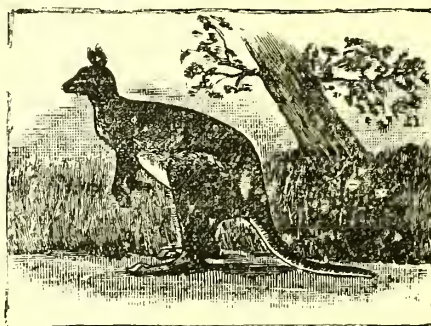
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FRANCIS E. ROOKLEDGE, CHEMIST,  
EASINGWOLD, YORK.

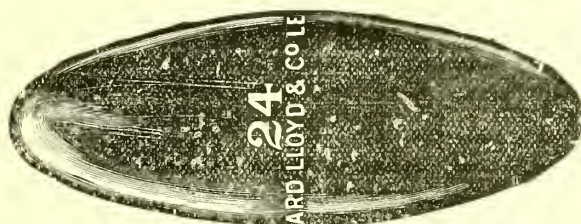
TO BE HAD OF USUAL WHOLESALE HOUSES.



# LLOYD'S "BI-CONICAL"

(CAPSULED)

# HORSE BALLS



We are now making our CAPSULED HORSE BALLS according to the above improved shape, the advantage of which is that they are swallowed with the greatest ease, and as both ends are conical in shape they can be introduced either way.

The Capsule is black, and each Ball bears the number corresponding to the formula. The name of the buyer can be put on without extra charge (for orders of one gross assorted), and in smaller quantities are supplied **either with or without our name.**

The Capsule preserves the mass unimpaired for a very long time, and by retaining the moisture prevents the ball from becoming hard and partially insoluble.

The Balls are put up in boxes containing half-a-dozen.

For complete list of formulæ, see Monthly Price Current, which will be forwarded upon application.

**A TRIAL ORDER WILL BE ESTEEMED.**

Private Formulæ prepared in a few days.

## T. HOWARD LLOYD & CO.

Wholesale Druggists and Manufacturing Chemists,

**86 HIGH STREET, LEICESTER.**



**SPECIALITIES.**

Castor Oil.	Camphor.	Albumen.	Ess. of Lemon.
Almond Oil.	Glycerine.	Herbs & Extracts.	Gums.
Olive Oil.	Lithia Salts.	Insect Powder.	Perfumes.
Cod-liver Oil.	Tartar Emetic.	Mercurials.	American Cotton Oil, etc.
Acetic Acid.	Castile Soap.	Camomiles.	
Tartaric Acid.	Pepsin, P.B.		
Phosphoric Acid.			
Salicylic Acid.			

**COMMISSION MERCHANTS.**

**FUERST BROS.**


**IMPORTERS-EXPORTERS.**

**LONDON, E.C., 17 Philpot Lane; and NEW YORK, 2 & 4 Stone Street.**

**SAMPLES AND PRICES ON APPLICATION.**

We only supply goods direct from Manufacturers personally known to ourselves. We can consequently vouch for the purity of the articles we sell.

CORRESPONDENCE SOLICITED.



**HARROLINE PILLS.**

**The Great Harrogate Tonic.**

An unfailing Cure for Poverty of Blood, Anæmia, Chlorosis, and every form of Debility arising therefrom.

**1s. 1d. and 2s. 9d.**

WHOLESALE FROM THE  
**HARROLINE PILL CO.,**  
HARROGATE.

FULL PARTICULARS & TERMS ON APPLICATION.

\*\*\*\*\*

Another CHEMIST writes:—

"Your 'Star' Preparations, especially the Suppositories, Bougies, and Kola Coca, give very great satisfaction. The demand, although now fairly strong, promises to increase largely, as two of our local doctors widely recommend them."

Terms and Wholesale Prices of the "STAR" PREPARATIONS on application to  
**MANAGER, CENTRAL DEPOT** (for Gt. Britain and Colonies),  
**OXFORD RD., GUSELEY, NEAR LEEDS.**

\*\*\*\*\*

## BARCLAY & SONS, LTD.



## CAMEL HAIR BRUSHES

IN GLASS TOP BOXES.

1 gross Assorted in a Hinged Box, with Glass Lid with a good supply of spare sticks

PLEASE SPECIFY  
"IN  
HINGED  
BOX."

PER BOX  
**3/6 NET.**



**95 FARRINGTON STREET, LONDON E.C.**

**ST DALMAS LEICESTER**

**Improved Adhesive Plaster**

ON FINE FLESH COLORED CAMBRIC

USED BY SURGEONS ALL OVER THE WORLD.

## "EMP. HÆMOSTATICUS"

Antiseptic  
Sterile

(REGISTERED).

Constant testimonies are received to the value of this remarkable plaster.

Three-yard Tins, 2/- per Tin.

**A. de ST. DALMAS & CO., LEICESTER,**  
Makers of Porous Plasters, Adhesive, Belladonna, Mustard, Court, and all other plasters  
QUALITY GUARANTEED. MAKERS TO THE BRITISH GOVERNMENT.

## WATERPROOF

## FABRICS, ETC.

HOSPITAL  
SHEETINGS.

PINK  
JACCONET.



BANDAGE  
CLOTHS.

WATER-  
PROOF  
LINT.

**THE VICTORIA RUBBER CO.,**

London Office and Warehouse—74 and 75 FOLEY STREET, E.C.

**Victoria Indiarubber Mills, EDINBURGH.**

Samples, &c., on application.



# PETROLINA

The Best and Most Reliable Paraffinum Mollé.

**PRICES MUCH REDUCED.**

Sold in casks of 3 cwt., kegs of 1 cwt., 56 lbs., and 28 lbs., and in tins of 14 lbs., 5 lbs., and 1 lb.

Samples and Prices from any Wholesale Druggist, or, if not so procurable, write direct to the

**BINGHAMTON OIL REFINING CO.**

London Agency—3 COLEMAN STREET, E.C.

## NEW SOAPS

MANUFACTURED BY

**F. C. CALVERT & CO.,**  
MANCHESTER.

*Good Value, Easily Sold, and Price not named on Tablets or Boxes.*

Coal Tar Soap, Pine Soap, Carbolic Soap, Carbolic and Sulphur Soap.

Paper-wrapped Tablets, averaging about 4 to the pound.

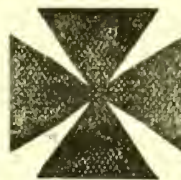
1 dozen boxes, each 1s. 8d. } Subject to Trade Discount.  
3 " " " 4s. 6d. }

\*<sub>2</sub> " Order above as Calvert's *HYGIENIC Brand*.

**FULLER'S EARTH SOAP, PUMICE SOAP, and PETROFENIC SOAP (for the Hair).**

paper-wrapped Tablets, averaging about 2½ oz. each. 1 dozen boxes each 1s. 3d., less Trade Discount.

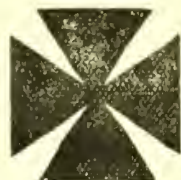
\*<sub>2</sub> " Order above as *CALVERT'S*.



**CAMPHORTAR**

8/- per Gross

**CAMPHORTAR**



A combination of Camphor, Eucalyptus, and Coal Tar. A Powerful Disinfectant, Deodorizer, Insect Destroyer, and Air Purifier.

*THE CHEAPEST DISINFECTANT BEFORE THE PUBLIC.*

It is most elegantly and attractively packed in the form of Maltese Crosses wrapped in Gelatine, and commands a ready sale. Camphortar fills the sick room with a pleasant odour, and destroys disease germs in the air. Camphortar is equally destructive to Moths and other insects. Camphortar is used as a protection against Smallpox, Influenza, Fever, Epidemics, and other infectious diseases.

## HEBDEN'S CHLORID OF LIME.

The Best, Cheapest, and Neatest Packet. Air-tight,

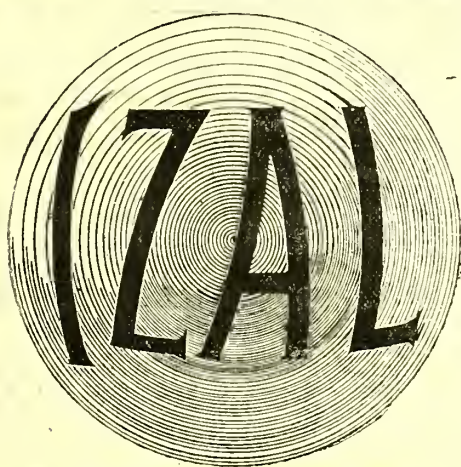
Waterproof, Odourless.

Quarter pounds...	...	...	...	...	8/- per gross.
Half " "	...	...	...	...	16/- "
One " "	...	...	...	...	30/- "

**W. C. HEBDEN,** Albany Works, HALIFAX, YORKSHIRE.



## IMPORTANT TRADE NOTICE.



**INSTANTLY DESTROYS INFECTION.**

Showcards, Pamphlets, and printed matter, and any information the Trade may require, can be obtained from

**Allen & Hanburys,** Plough Court, Lombard Street, London.

West-end House: VERE ST., CAVENDISH SQ., W. Laboratories and Warehouse: BETHNAL GREEN, LONDON, E.  
Cod Liver Oil Factories: LONGVA & KJERSTAD, NORWAY. Australian Agency: 484, COLLINS ST., MELBOURNE.

### Allen & Hanburys

desire to inform the Trade generally that they have been appointed by Messrs. NEWTON, CHAMBERS & CO. to act as their SPECIAL AGENTS in the putting up and sale of "IZAL."

Orders for the same may be addressed to the Wholesale and Patent Medicine Houses.

"IZAL" is supplied in bottles at 1/-, 2/6, and 4/6 each retail; 9/6, 24/-, and 44/- per dozen wholesale; and in 1-gallon drums, 10/- each retail, 8/- each wholesale.

N.B.—The wholesale prices quoted are NET, but a small discount is allowed on quantities of not less than 20l. value, and orders for this quantity should be addressed to ALLEN & HANBURY'S direct.



# BOXES

ROUND, OVAL, SQUARE, or FOLDING, for the  
**DRUG, DRYSALTRY, AND CONFECTIONERY TRADES.**

LABELS, WHEN PRINTED TO OUR INSTRUCTIONS, WE PUT ON PILL  
AND OTHER BOXES FREE OF CHARGE.

## BOXES AND CASES FOR

Baking Powder, Black Lead, Bottles, Camphor Ball, Capsules, Castor Oil, Cough Lozenges, Dispensing Powder, Eye Ointment, Fancy Boxes, Fuller's Earth, Folding Boxes, Glass Top Outers, Homœopathic Bottles, Insect Powders, Ink Cases, Jewellery, Lozenge, Lip Salve, Magnesia, Metal Paste, Marking Ink, Nipple Shields, Night Lights, Parcel Post, Pastilles, Pills, Potash Tablets, Plasters, Salt Lemon, Seidlitz Powder, Starch Gloss, Soaps, Soda Powder, Syringes, Tapers, Tooth Powder, Violet Powder, &c.

**ROBINSON & SONS, WHEATBRIDGE MILL & CHESTERFIELD.**  
**HOLMBROOK WORKS, CHESTERFIELD.**

And 55 FANN STREET, ALDERSGATE STREET, LONDON.

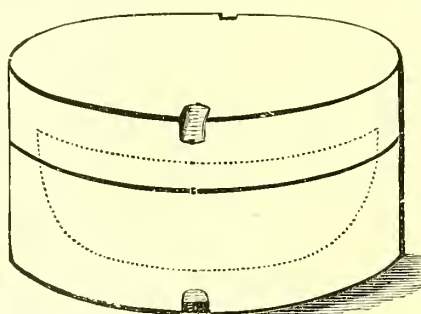
# WILLIAM TOOGOOD.

**TOOGOOD'S**

IMPROVED PATENT

**EARTHENWARE  
COVERED POTS**

Are claimed to be the most  
perfect and convenient yet offered to  
the Trade.



Owing to the increasing demand  
for our Patent Pots, we have in-  
troduced a Special THIN Series  
for Dispensing.

These Pots are beautifully  
glazed and finished, and, being  
very light, are specially adapted  
for sending by post.

ORDINARY THICKNESS—									
1 dr.	2 dr.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	3	4	8 ounces.
1/6	1/6	1/6	1/8	1/10	2/-	2/3	2/10	3/6	4/6 5/6 per doz.
THIN FOR DISPENSING—									
$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	4	6	8 ounces.
1/7	1/9	2/-	2/2	2/5	3/-	4/-	5/-	6/-	8/- per doz.

**TOOGOOD'S BATHING CAPS.** Write for New Season's List.

**TOOGOOD'S SPONGE BAGS.** Write for New Season's List.

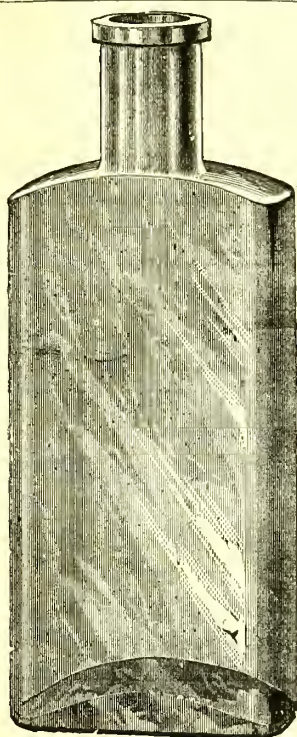
**TOOGOOD'S FLESH GLOVES.** Write for New Season's List.

**TOOGOOD'S FEEDING BOTTLES.** Write for Special List.

**BURLINGTON BUILDINGS, HEDDON ST., REGENT STREET, LONDON, W.**



# GLASS BOTTLES



FLAT—with Round Edges.

## DISPENSING BOTTLES.

**BEST QUALITY,**

SUITABLE FOR A HIGH-CLASS TRADE.

### GREEN FLINT.

Flats (ordinary and round edges), Ovals, Direct Squares, Rounds and Octagons (plain, graduated, and lettered),

3	4	6	8	12	16 oz.
10/-	10/-	11/6	11/6	16/9	22/6 per gross.

### WHITE VIALS (Plain and Graduated),

1/6	1	1 1/2	2	3	4 oz.
4/6	4/9	6/-	6/9	8/9	10/- per gross.

SAMPLES ON APPLICATION.

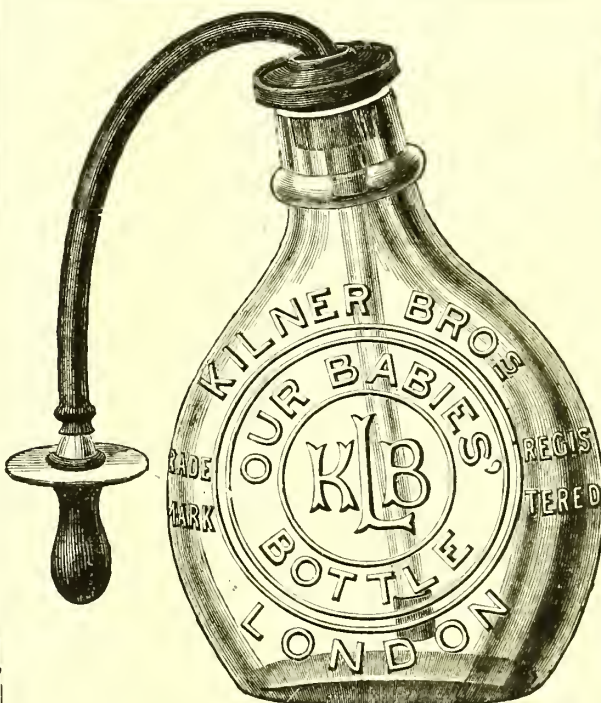
## FEEDING BOTTLES.

No.	6 1/4-inch Rubber Tube.	Small lots.	2-grs. lots.
1.—Green Bottles, Boxwood Top Corks,			
White Fittings	...	...	25/6 24/6
3.—Ditto, Black Fittings	...	...	28/6 27/6
White glass	2/6	per gross extra.	
China tops	1/6	per gross extra.	
64.—Green Bottles, Glass Screw Stoppers,			
White Fittings	...	...	31/- 30/-
66.—Ditto, Black Fittings	...	...	34/- 33/-
White Glass	3/-	per gross extra.	

per grs.

These prices include 1 doz. partitioned Wood Boxes. If Bottles are loose 2/- per gross less.

Supplied each Bottle in Cardboard Box at 4/6 per gross extra.



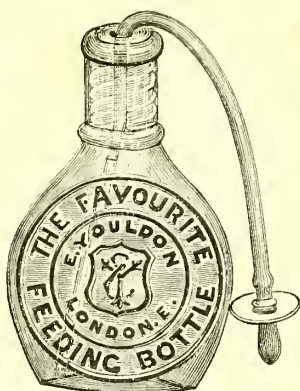
## MINERAL WATER BOTTLES AND BOXES OF ALL KINDS.

*Illustrated Catalogue containing full particulars sent on application to*

# KILNER BROTHERS,

No. 3 GREAT NORTHERN GOODS STATION, KING'S CROSS, LONDON.





# GLASS BOTTLES

OF EVERY DESCRIPTION.

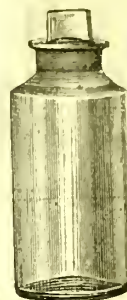
Revised Price List on Application.  
FEEDING BOTTLES AT LOW RATES.

Write for Prices of any kind of Bottle required to

## E. YOULDON,

East London Glass Bottle Warehouse,

36, 38, & 40 GREAT GARDEN STREET, WHITECHAPEL, LONDON, E.



Telephone No. 1365.

Telegraphic Address—"FISH LONDON."

## THE BEST BOTTLES.

DEAR SIR,

If you want to replenish your Stock, } Send an  
If you want a New Shape Bottle, } inquiry to

Yours faithfully,

### JOHNSEN & JØRGENSEN.

## GLASS BOTTLES

GOOD AND CHEAP.

From Stock  
in London or  
direct from  
the works.

**THE NEW SHAPE FLATS,**  
With rounded edges, or the ordinary kind, plain or graduated.  
3 and 4 ounce .. .. 8/- per gross.  
6 and 8 .. .. 9/-

**WHITE MOULDED PHIALS.**  
1/2 oz. 1 oz. 1 1/2 oz. 2 oz.  
3/6 .. 3/9 .. 4/6 .. 5/3 per gross.

**PANEL BOTTLES.**  
2 oz. 4 oz. 6 oz. 8 oz.  
7/- .. 8/- .. 9/- .. 9/- per gross.

**SPECIAL NOTICE.**—Six gross and upwards of assorted sizes sent Carriage Free to any part of England. Smaller quantities not carriage paid. Sample Bottle sent free on application.

**I. ISAACS & CO., GLASS BOTTLE MANUFACTURERS,**  
25 Francis St., Tottenham Court Road, LONDON, W.C.  
Established 50 Years. Bankers—London and Westminster Bank.

## THE BERKEFELD - NORDTMEYER FILTER.



**THE LANCET,** September 12, 1891:—  
"We have put the Berkefeld Filter through many rigid tests; we have not obtained the slightest evidence which would enable us to contest any of the statements made in regard to this filter."

### ADVANTAGES.

Rapid, Perfect, and Permanent  
Filtration.  
Easy Cleaning and Sterilization.  
All Descriptions Supplied.

The Berkefeld Filter Co., Limited, 121 Oxford St., London, W.  
LOCAL AGENTS APPOINTED.

## SOME DAY

It may be Useful

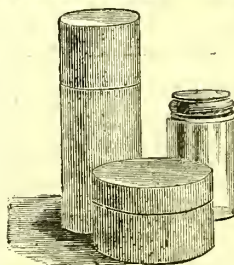
To know that **LARGE CONSUMERS** are supplied with well designed and well printed Show Cards, Wrappers, Labels, Leaflets, and every kind of Colored Printing at **low prices.**

**ESTIMATES GIVEN. CORRESPONDENCE INVITED.**

**TAYLOR BROTHERS,**  
Color Printers by Modern Methods, LEEDS.

In Stock, upwards of 50,000,000 Articles.  
Any special Articles made to order.

## TURNED WOOD BOXES, &c.



\*3018 Box for Pills or Powders.

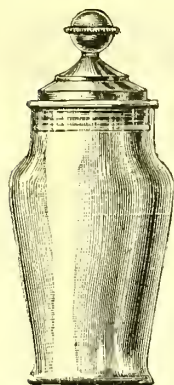
SIZE	To hold	PER GROSS.
D ..	6 Pills	1/-
A ..	12 ..	1/6
C ..	24 ..	2/-
H ..	36 ..	3/-
V ..	Powder	8/-

REDUCED PRICES for Original  
Boxes.

CONTRACTS to supply Manufacturers as  
required at specially low figures.

**MAXIME & CO., Wood and Bone Turners,**  
150 OLD STREET, LONDON, E.C.  
Factories and Sawmills—Gothenburg, SWEDEN, and Boulogne, FRANCE.





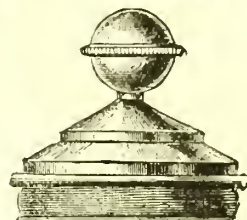
## NEW PATENT AIR-TIGHT CHEMIST JAR.

A slight turn of the knob presses the indiarubber Band against the glass, and renders the vessel absolutely air-tight. The Stopper is made of pure Nickel, of handsome shape.

INVALUABLE FOR SHOW BOTTLES, CHEMISTS, CONFECTIONERS, &c.

Samples and Prices of all Chemists' Sundriesman

**C. MELIN,** [2]  
37 CRUTCHED FRIARS, MARK LANE, E.C.



Section of the Nickel Stopper when closed.

## AIR-TIGHT TINS & CANISTERS

FOR CHEMISTS & DRUGGISTS.

ENAMELLED  
IN ALL COLORS

ARTISTICALLY ORNAMENTED

WITH VARIOUS DESIGNS IN GOLD.

AND LABELLED TO ORDER

These Enamelled Canisters are a great improvement upon the old-fashioned Specie Jars, for, besides being unbreakable, they have a very handsome appearance when placed on Chemists' side-fittings. Made in all sizes.

**JOHN A. GILBERT & CO.,** 2 & 4 Mount Pleasant, **GRAY'S INN RD., LONDON, W.C.**  
Elm Street,

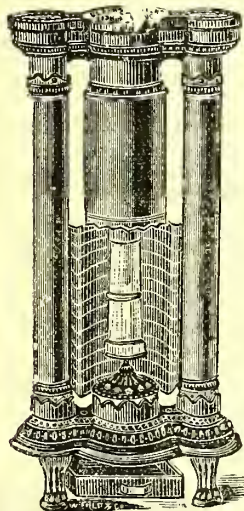
## TO CHEMISTS AND DRUGGISTS.

AGENTS WANTED FOR THE SALE OF

**"THE SYPHON"** (REGISTERED TITLE) **HYGIENIC CONDENSING GAS HEATING-STOVES**  
(CLARK'S PATENT).

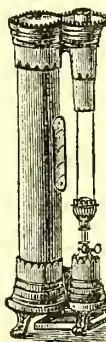
A Necessary for all Invalids. A Comfort to Everybody.

**NO FLUE REQUIRED. FREE FROM SMELL OR SMOKE.**



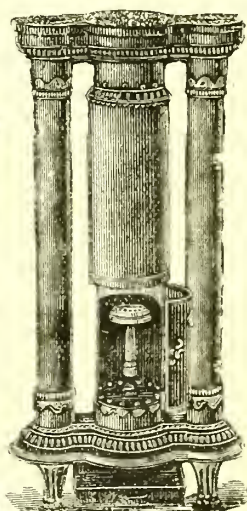
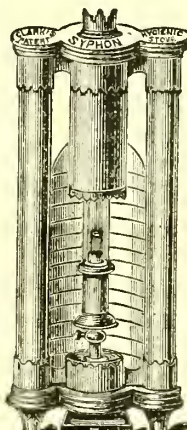
All injurious vapours are reduced to harmless liquid inside the Stove, and passed out at foot into a tray provided for that purpose.

For use in Hospitals, Sick Chambers, Bedrooms,  
Halls, Conservatories, Schools, Shops, &c.



They give a Pure, Equable, and Agreeable Heat, which can be graduated and sustained at the will of the user.

Specially suitable for patients suffering from Bronchial affections, as a moist atmosphere is obtainable when required.



**S. CLARK & CO.,** Patentees and Makers, Syphon Works, Park Street, **ISLINGTON, LONDON, N.**

Telegraphic Address—"SYPHON STOVES LONDON." Wholesale Agents—Messrs. MAW, SON & THOMPSON, Aldersgate Street, London, E.C.



Wholesale Buyers should write for Terms and Samples of the  
Cheapest and Best

GUTTA PERCHA OR METALLIC

## TOOTH STOPPINGS

Which are Manufactured by J. J. LAKEMAN, Dentist, LEYTONSTONE,  
Maker of the MERMAID IMPRESSION COMPOSITION for Dentists.  
Use, 3s. per lb., post free.



## DENTAL.

Our business is to supply Teeth, Instruments, Tools,  
Gas Apparatus, and every requisite for Dental Prac-  
titioners; full value at bottom prices. Paragon  
Rubbers, best and cheapest, half-pound each, mailed  
free for 10/9, as sample. Springs and Swivels,  
2/6 dozen sets. Send for them! Complete outfits,  
Enquiries invited. Prompt despatch.

ELLIOTT & CO., 30 Hanover St., EDINBURGH.

## EWALD HILDEBRAND, ARMY CONTRACTOR.



No. 690, 12s. per dozen, guaranteed.

HALLE a/S. GERMANY.

## ORANGE WINE

(VIN. AURANT., P.B.).

Specially brewed for Quinine Wine. Does not deposit, will keep good in any climate.  
In casks, 13 gallons to 140 gallons; small casks, 3s. 9d. per gallon, carriage allowed  
if paid within three months. In wine-bottles (not less than 3 doz.), at 9s. per doz.  
bottles included. Casks and cases extra, and returnable.

Sample on application. Special quotations to large buyers.

DURRANT & CO., Railway St., HERTFORD.

## BLAUD'S PILLS (Best Quality, Soluble Coating).

10-gross Tins, carriage paid, for 4/6. Cash with order.

7-lb Tins (56 gross), carriage paid, for 21/-. Cash with order.

## COMP. SULPH. LOZ. (Garrod's Formula) & TABLETS.

4 lbs., carriage paid, for 4/-. Cash with order.

7 lbs., carriage paid, for 6/6. Cash with order.

SPECIAL QUOTATIONS FOR LARGE QUANTITIES.

JAMES N. DAVIDSON & GRAY, CHEMISTS, DUNDEE.

## COFFEE.

### THE "ORIGINAL CANISTER" & ROASTED COFFEES

These Coffees have been before the Public for nearly 50 years,  
and are the very best of their kind.

WHITE, FAIRCHILD & CO., 30 Gt. Tower St., E.C.

ESTABLISHED 1847. AGENTS WANTED.

## BLAIR'S GOUT & RHEUMATIC PILLS

Cure Gout, Rheumatism, Sciatica, Lumbago, Neuralgia.

The Excruciating Pain is quickly relieved, and cured in a few days, by  
these celebrated Pills, well known as the Great Remedy for the above  
Complaints. NO POISONOUS INGREDIENTS.



E. H. THIELLAY'S (Registered 1867)

## EAU F. JOUVENCE, GOLDEN.

Producing Flaxen Golden Hair.

Gold Medal, PARIS, 1867. PHILADELPHIA, 1876.

This is a very superior article. In Bottles at 3/6, 6/-, & 10/-

All Wholesale Houses, or direct from

E. H. THIELLAY,

Parfumeur-Chimiste, Amersham Park, New Cross, LONDON S.E.  
(SHOW ROOMS AT CHARING CROSS HOTEL.) [3]

## PRECIPITATED CHALK, WHITEST PUREST.

CHEAPEST SELLERS IN THE MARKET.

ALSO CHEMICALS, DRUGS, AND OILS.

APPLY TO

AUG. LEVERMORE & CO., 8 LIME STREET, LONDON, E.C.

## FREDK. FINK & CO.

10 & 11 MINGING LANE, LONDON, E.C. [1]

SPECIALITIES: Glycerine — Gum Arabic —  
Gum Tragacanth — Pure Beeswax — Honey.

## CINCHONA BARK & CRUDE DRUGS.

SPECIALITIES OF

FREDK. GRAF, Drug Merchant, 65 Fenchurch St., London, E.C.

PRICES AND SAMPLES ON APPLICATION.

## Bromley's Gout & Rheumatic Pills

Estab. 1807.

WILL CURE.

FREE Printing of Chemists' own Circulars.

READ DIARY, PAGE 408.

Voted 5th out of 500 representative firms' announcements as  
most useful and most likely to bring best results.

Awaiting your esteemed reply to-day, with copy for Hand-  
bills or Labels.

CHEAPEST.

Retail Profit

£1 on £3.

Full retail

prices absolutely

guaranteed.

SIR THOMAS'S BUILDINGS, LIVERPOOL, ENGLAND.

## EAD'S

## GOUT and RHEUMATIC PILLS

Are the safest and most effectual remedy advertised for

GOUT, RHEUMATISM, AND ALL MUSCULAR PAINS.

GEORGE EADE, 72 GOSWELL RD., E.C.

Counter Bills and Show Cards on application.

## S.V.R.

In 40-gallon returnable iron casks, pure tinned, with screw  
bungs, interchangeable brass taps and spanners for opening.  
Farina, Dextrine, Glucose, Alcohol absolut., Fusel Oil, Pear  
Oil, Lime-Soda-Lead-Acetates, Verdigris, Acetic Acid, Wood Naphtha,  
Charcoal, Ammonia liquid 880-900, anhydrous Sodium Sulphide, Bromides,  
Iodides, Chloralhydrate, Boracic Acid, Sulphate of Copper, Permanganate of  
Potash, Oil Caryophyll, Menth. Pip, Pini, Juniperi.

HUGO LORENZ, 7, 8 Idol Lane, LONDON, E.C.

See also page 114, March 18 issue.

## OXONIA

The New Lotion for Rodent Ulcer, Cancer of Tongue, Lips,  
Lupus, Ringworm, Varicose Veins, &c.

Retail, 2/9 per Bottle Trade, 23/- per dozen, subject.

THOMAS CHRISTY & CO., 25 Lime Street, LONDON, E.C.

## EVERY CHEMIST

SHOULD STOCK

## HEALD'S DOG MEDICINES.

They command a ready sale everywhere.

Address—HEALD, BURNHAM, BUCKS.



# FIRST EXTRACT LEMON OIL,

Absolutely pure. Nothing finer imported.  
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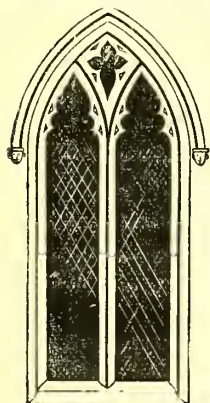
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**WATSON & WATES,**  
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Of every MEDICINE, SPECIAL PREPARATIONS, and everything appertaining to HOMŒOPATHIC PHARMACY.  
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Hydrogen Peroxide, Indigo Extract, Soluble Indigo Powder, Orchil, Cudbear, Logwood Extract, Fustic Extract, Aniline Dyes, Fine Lakes for Lithographic Inks, Vermilionettes, Drysalteries.

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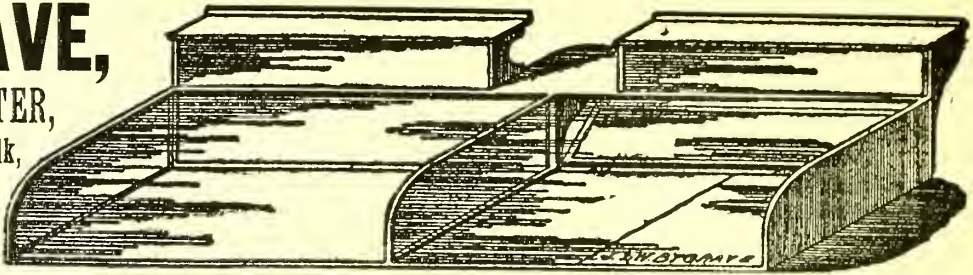
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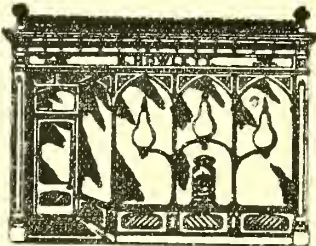
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Bent-top plate-glass Counter Showcase, in French polished mahogany, or ebonized, with two upright mirror plate-glass fronted shelves, and table in centre for serving over, and mahogany falls at back lined with mirror plate glass inside fitted with crimson velvet trays—if 5 ft. long, 18 in. wide, 8 in. high (total height 13 in.). £5 10s. ; 5 per cent. off for cash.

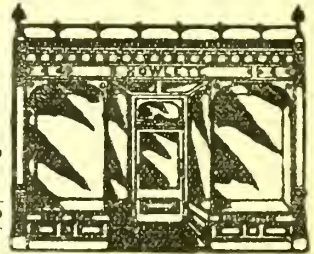


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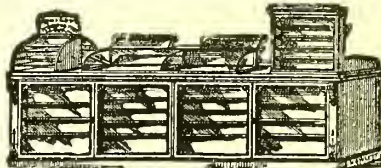
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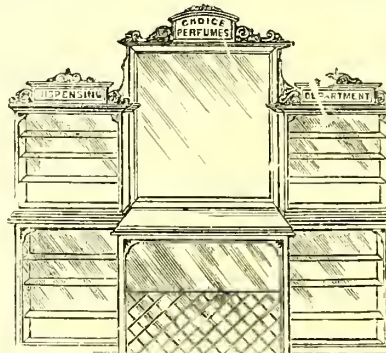
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6 feet long by 2 feet wide .. £24  
If the Dispensing Screen only .. £12

This handsome Dispensing Counter is manufactured in Spanish mahogany, and of the best workmanship, so that it will stand any climate. The counter has a solid mahogany top and plate-glass case front. The centre part fitted to take sponge. A mahogany screen on top, consisting of two plate-glass cases, with shelves inside, and large plate-glass mirror in the centre, and three glass tablets with gold writing in ornamental mahogany carved work. The back of screen fitted with small shelves and a glass poison-cupboard. The inside of counter fitted with strong counter-drawers, label and cork drawer, open shelves, &c.



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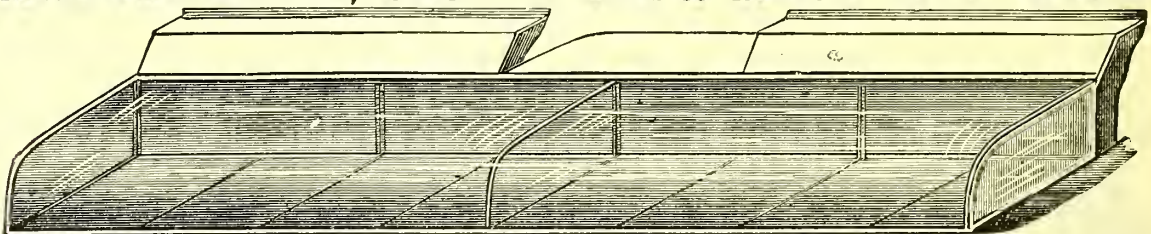
In consequence of inferior Second-hand Goods being sold for our make, we have found it necessary to protect our reputation for best work with a Trade Mark, as above, and unless goods are so stamped we cannot be answerable.

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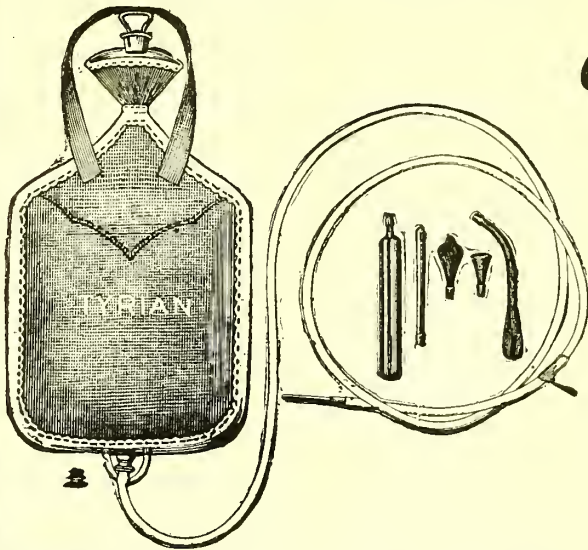
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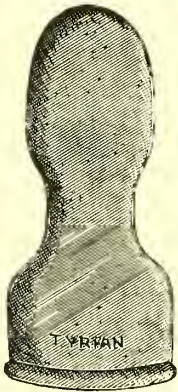


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FOUNTAIN SYRINGE  
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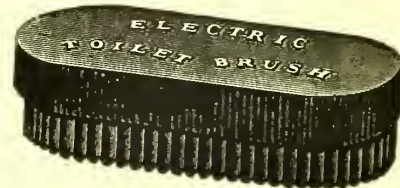
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*Unsurpassed for removing Dirt or  
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